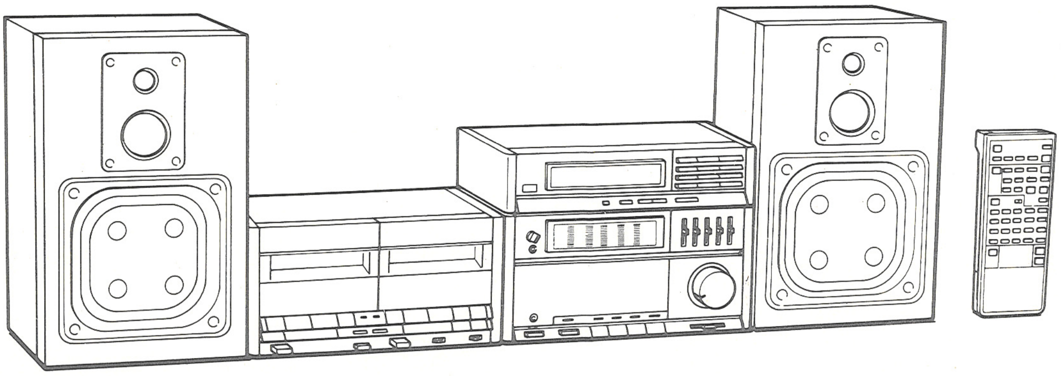
MHC-3000

SERVICE MANUAL

AEP Model



- MHC-3000 is composed of following models. As for the service manual, it is issued for each component model, then, please refer to it.

COMPONENT MODEL NAME FOR MHC-3000

TUNER	ST-707RM
CASSETTE DECK	TC-WR808M
AMPLIFIER	TA-808M

ACCESSORIES SUPPLIED

RM-808 Remote Commander (1)
Sony SUM-3(NS) batteries (2)
Flat cord (1)
CD player connecting cord (1)

PARTS LIST

ACCESSORY & PACKING MATERIAL

Part No.	Description
1-463-979-11	REMOTE COMMANDER (RM-808)
1-501-369-11	ANTENNA
1-558-233-11	CORD (WITH CONNECTOR) (SIRCS) 4P
1-559-821-11	CORD (WITH CONNECTOR)
3-769-866-11	MANUAL, INSTRUCTION
3-769-866-41	MANUAL, INSTRUCTION
*4-922-776-01	INDIVIDUAL CARTON
*4-925-560-01	CUSHION, UPPER
*4-925-561-01	CUSHION, LOWER

- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

COMPACT HI-DENSITY COMPONENT SYSTEM

SONY®

MICROFILM
9-953-229-11

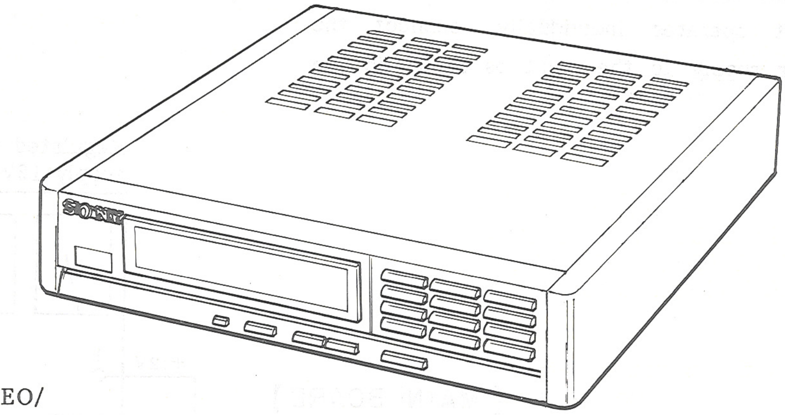
Sony Corporation
Audio Group

English
88C0644-1
Printed in Japan
© 1988.3
Published by A/V Engineering Service Dept.

ST-707RM

SERVICE MANUAL

AEP Model



- ST-707RM is the FM STEREO/ FM-AM TUNER in MHC-2000/ MHC-3000.

SPECIFICATIONS

System	FM stereo, FM/AM superheterodyne tuner Quartz-locked PLL digital synthesizer system

FM tuner section

Tuning range	87.5 to 108 MHz
Antenna terminals	75 ohms unbalanced
Intermediate frequency	10.7 MHz
Usable sensitivity	2.3 μV (S/N = 30 dB/75 ohms)

MW/LW tuner section

		MW	LW
Tuning range		531 – 1,602 kHz (except Italy) 522 – 1,611 kHz (for Italy)	153 – 281 kHz (except Italy) 144 – 288 kHz (for Italy)
Antenna		Built-in ferrite bar antenna External antenna terminal	
Usable sensitivity	Bulit-in ferrite bar antenna	250 μV/m (999 kHz)	500 μV/m (230 kHz)
	External antenna	100 μV (999 kHz)	150 μV (230 kHz)
Signal-to-noise ratio		52 dB (50 mW/m)	
Harmonic distortion		0.3% (50 mV/m, 400 Hz)	

General

Dimensions	Approx. 245 × 55 × 240 mm (w/h/d) ($9\frac{3}{4} \times 2\frac{1}{4} \times 9\frac{1}{2}$ inches) incl. projecting parts and controls
Weight	Approx. 1.0 kg (2 lb 4 oz) net

MICROFILM

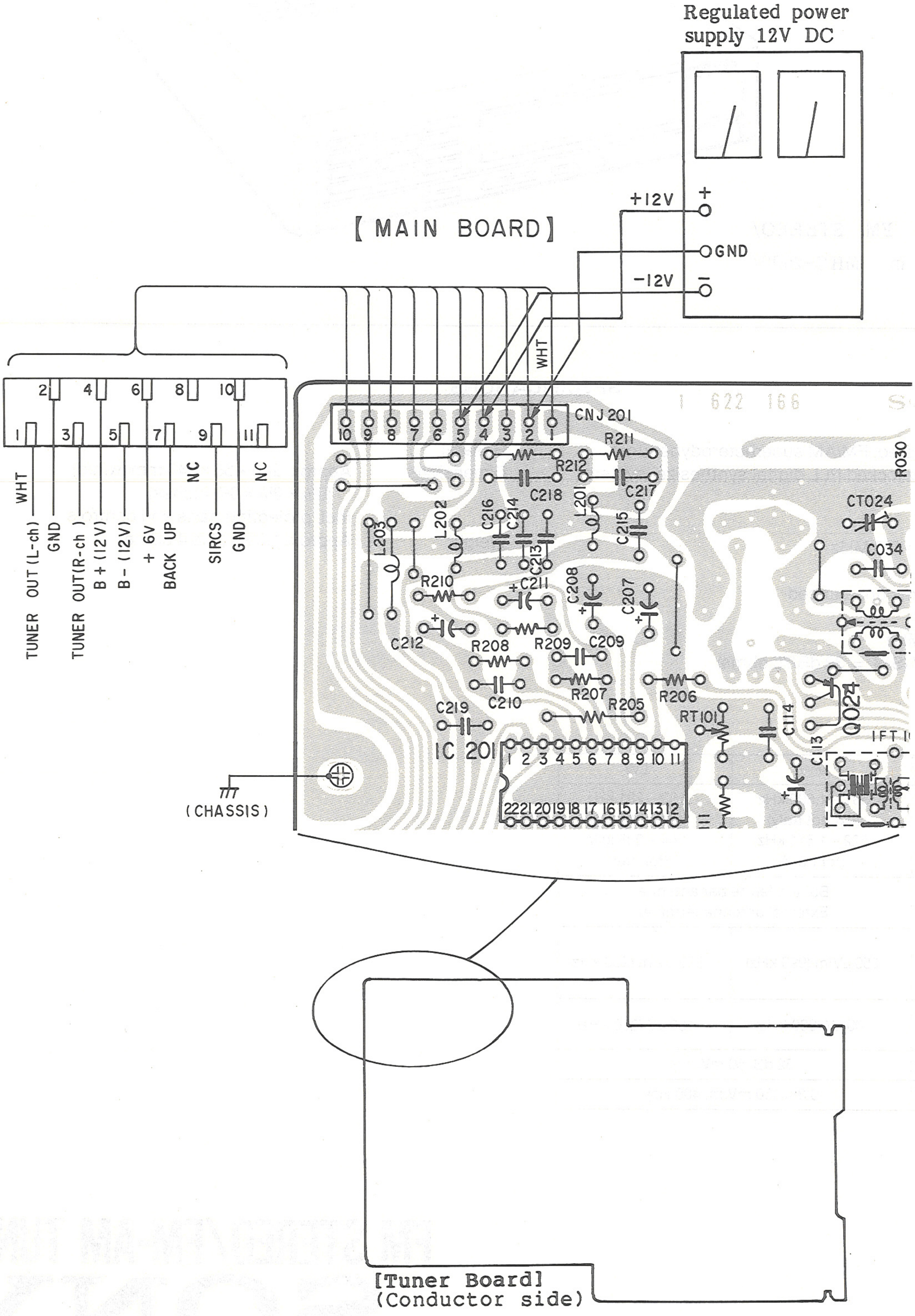
FM STEREO/FM-AM TUNER

SONY®

REPAIRING PRECAUTION

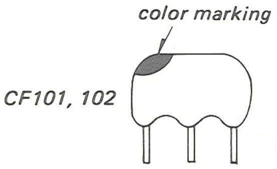
[To apply B+voltage]

The power of this units is fed from other unit. When the unit operates individually, connect the regulated power supply to the point as shown in the below figure.


Regulated power supply 12V DC
+
GND
−
+12V
−12V
[MAIN BOARD]
WHT
CNJ 201
10 9 8 7 6 5 4 3 2 1
1 622 166
2 4 6 8 10
1 3 5 7 9 11
WHT
TUNER OUT (L-ch)
GND
TUNER OUT (R-ch)
B+ (12V)
B- (12V)
+6V
BACK UP
NC
SIRCS
GND
NC
R211
R212
C218
C217
R030
L201
L202
L203
C216
C214
C213
C215
CT024
C034
R210
C211
C208
C207
C212
R208
R209
C209
R207
R205
R206
C219
C210
RT101
C114
C113
Q024
IFT
IC 201
1 2 3 4 5 6 7 8 9 10 11
22 21 20 19 18 17 16 15 14 13 12
(CHASSIS)
[Tuner Board]
(Conductor side)

Note on Ceramic Filter (CF101, 102) Replacement and Diode D314, 315 Connection.

This set employs two ceramic filters (CF101, 102) which should have the same color marking to identify their center frequency. Therefore FM IF offset adjustment by diodes (D314, 315) connection is necessary to match the center frequency of the ceramic filters used with FM intermediate frequency.



○: connect
×: not connect

Ceramic filter		D314, 315 connection		FM intermediate frequency (MHz)
Color mark	Center frequency (MHz)	※A (D314)	※B (D315)	
White	10.750	○	×	10.750
Red	10.700	×	×	10.700
Black	10.650	×	○	10.650

FM intermediate frequency is determined by the three types as shown above. Ceramic filters of same center frequency, i.e., of same color coding should be used for CF101 and CF102.

When replacing the ceramic filters, perform the FM Discriminator Adjustment.

WARNING !!

ADVARSEL!
Lithiumbatteri – Eksplosionsfare
Udskiftning må kun foretages
af en sagkyndig, og som
beskrevet i servicemanualen.

LITHIUM BATTERY

SHOULD ONLY BE CHANGED BY TECHNICAL PERSONNEL. THERE IS A RISK FOR EXPLOSION AT A WRONG HANDLING.

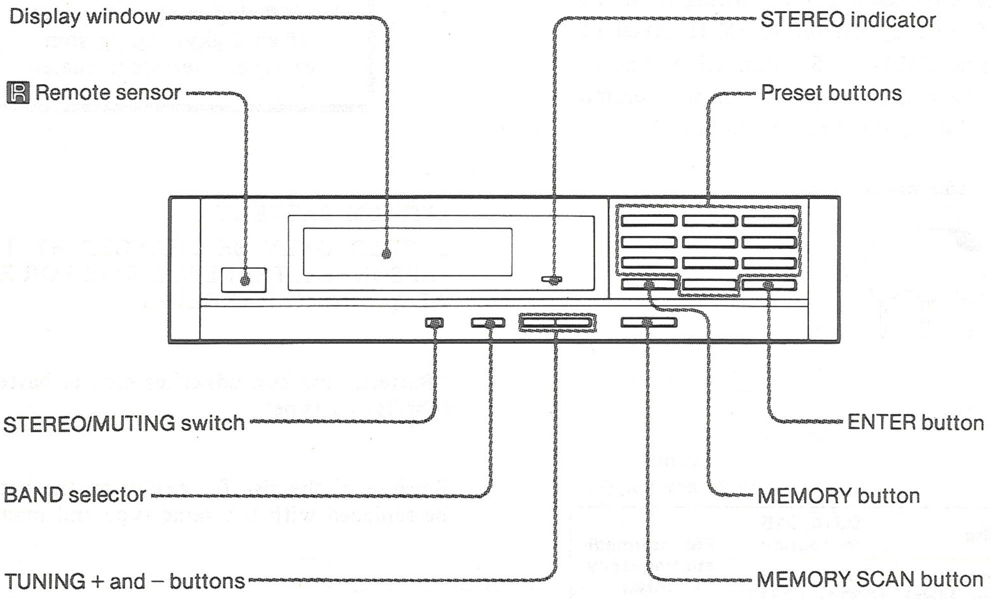
"Batteriet må kun udskiftes med et batteri af samme fabrikat og type".

Because of the risk for explosion the battery must be replaced with the same type and manufacture.

MODEL IDENTIFICATION

SONY® MODEL NO. ST-707RM
FM STEREO/FM-AM TUNER

PARTS IDENTIFICATION


Display window
Ⓡ Remote sensor
STEREO indicator
Preset buttons
ENTER button
MEMORY button
MEMORY SCAN button
STEREO/MUTING switch
BAND selector
TUNING + and – buttons

SECTION 1
ELECTRICAL ADJUSTMENTS

FM SECTION

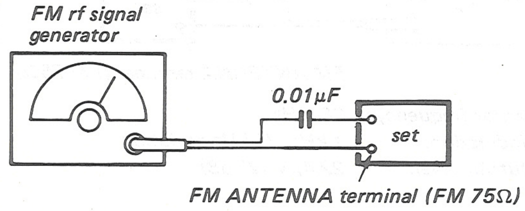
Setting:

BAND selector switch: FM

Note: FM discriminator alignment should be made after FM tracking adjustment.

FM Tracking Adjustment

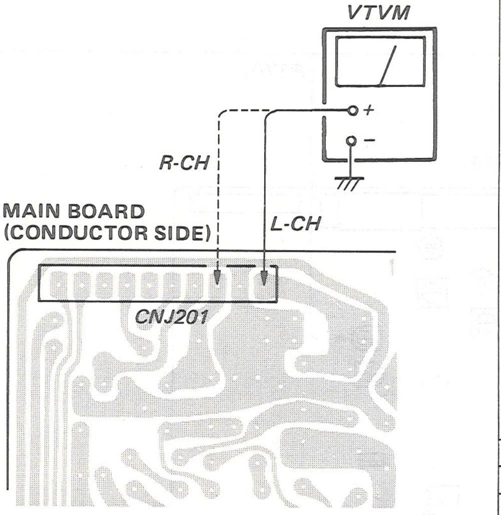
Setting:


FM rf signal generator
0.01μF
set
FM ANTENNA terminal (FM 75Ω)

Carrier frequency: *98 MHz*
Modulation: *1 kHz, 75 kHz deviation*
Output level: *3.16μV (10 dB)*

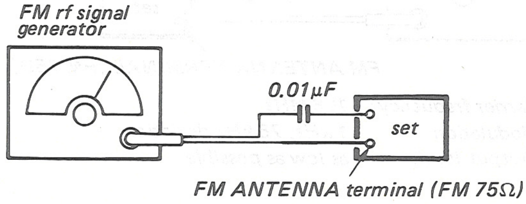
Procedure:

1. Push TUNING (+, –) button for 98 MHz.
2. Approach L002 and L003 not to contact each other.
3. Adjust L001 and L003, and repeat the adjustment 2 – 3 times for maximum VTVM reading.

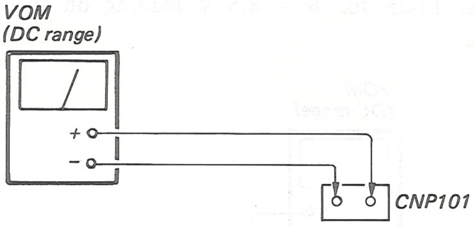

VTVM
+
–
R-CH
L-CH
MAIN BOARD (CONDUCTOR SIDE)
CNJ201

FM Discriminator Alignment (NULL Check)

Setting:

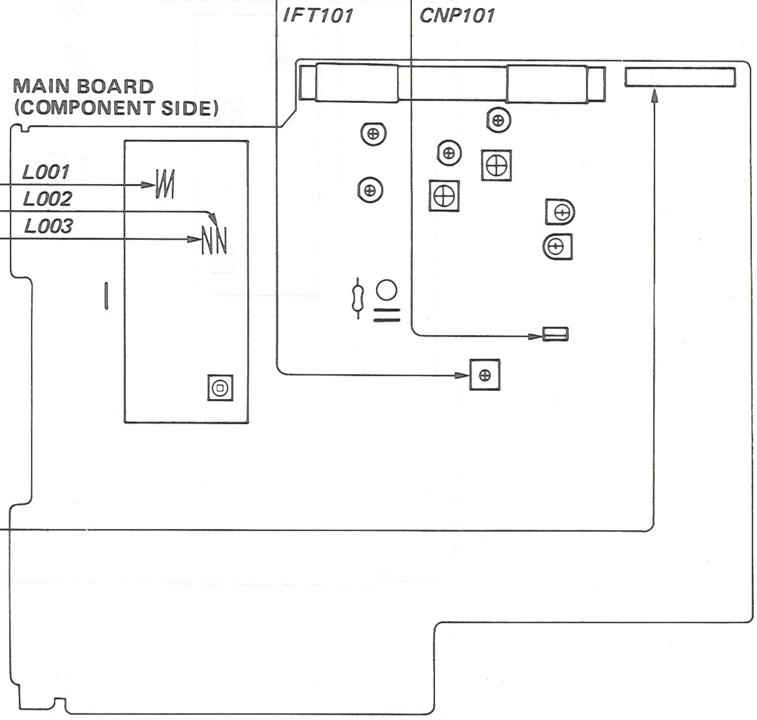

FM rf signal generator
0.01μF
set
FM ANTENNA terminal (FM 75Ω)

Carrier frequency: *98 MHz*
Modulation: *1 kHz, 75 kHz deviation*
Output level: *1 mV (60 dB)*


VOM (DC range)
+
–
CNP101

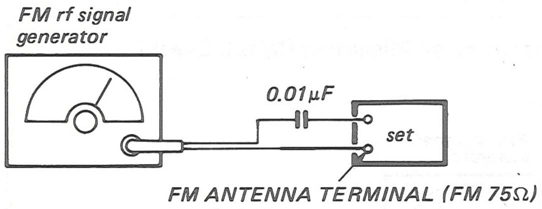
Procedure:

1. Push the TUNING (+, –) button for 98 MHz.
2. Adjust IFT101 for 0 V reading on the VOM.


IFT101
CNP101
MAIN BOARD (COMPONENT SIDE)
L001
L002
L003
CNJ201

FM OSC Voltage Adjustment

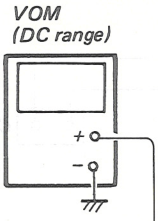
Setting:


FM rf signal generator
0.01µF
set
FM ANTENNA TERMINAL (FM 75Ω)

Carrier frequency: 108 MHz
Modulation: 1 kHz, 75 kHz deviation
Output level: as low as possible

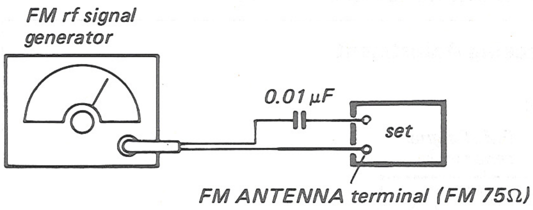
Procedure:

1. Push the TUNING (+, –) button for 108 MHz.
2. Adjust L005 for 8 – 8.5 V reading on the VOM.


VOM
(DC range)
+
–

FM TUNED Indication Lighting Level Adjustment

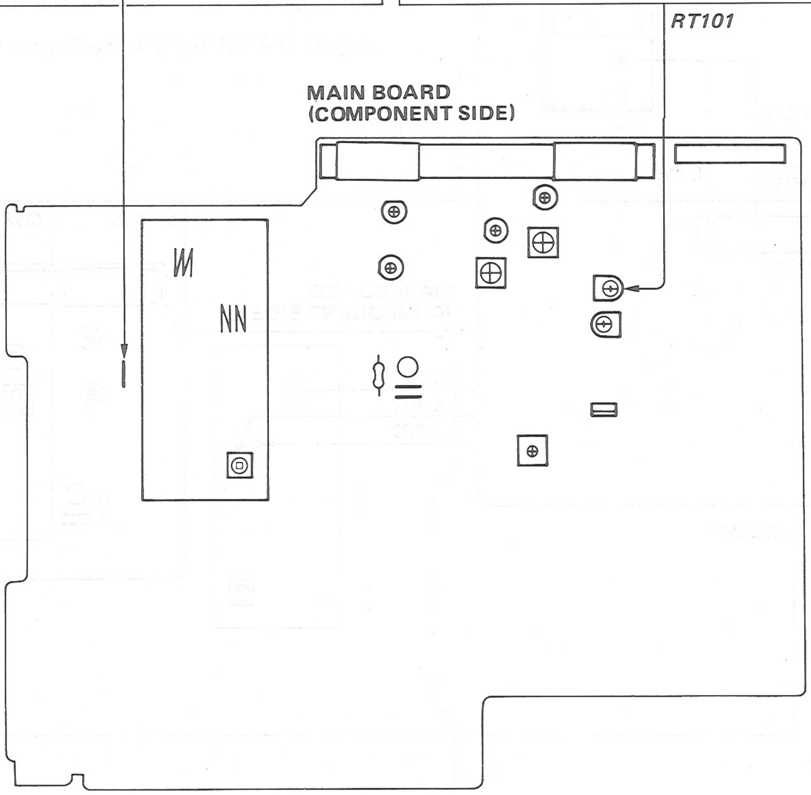
Setting:


FM rf signal generator
0.01µF
set
FM ANTENNA terminal (FM 75Ω)

Carrier frequency: 98 MHz
Modulation: 1 kHz, 75 kHz deviation
Output level: 22.4µV (27 dB)

Procedure:

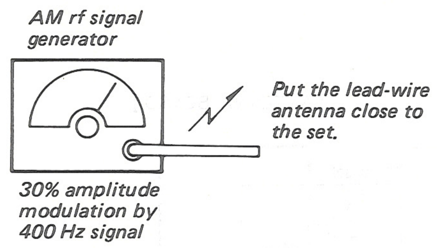
1. Confirm that the MUTING indicator lights up on the display window.
2. Tune the set to 98 MHz.
3. Adjust RT101 so that the TUNED indicator goes on.


RT101
MAIN BOARD
(COMPONENT SIDE)

AM SECTION

Setting:

BAND selector switch: MW or LW

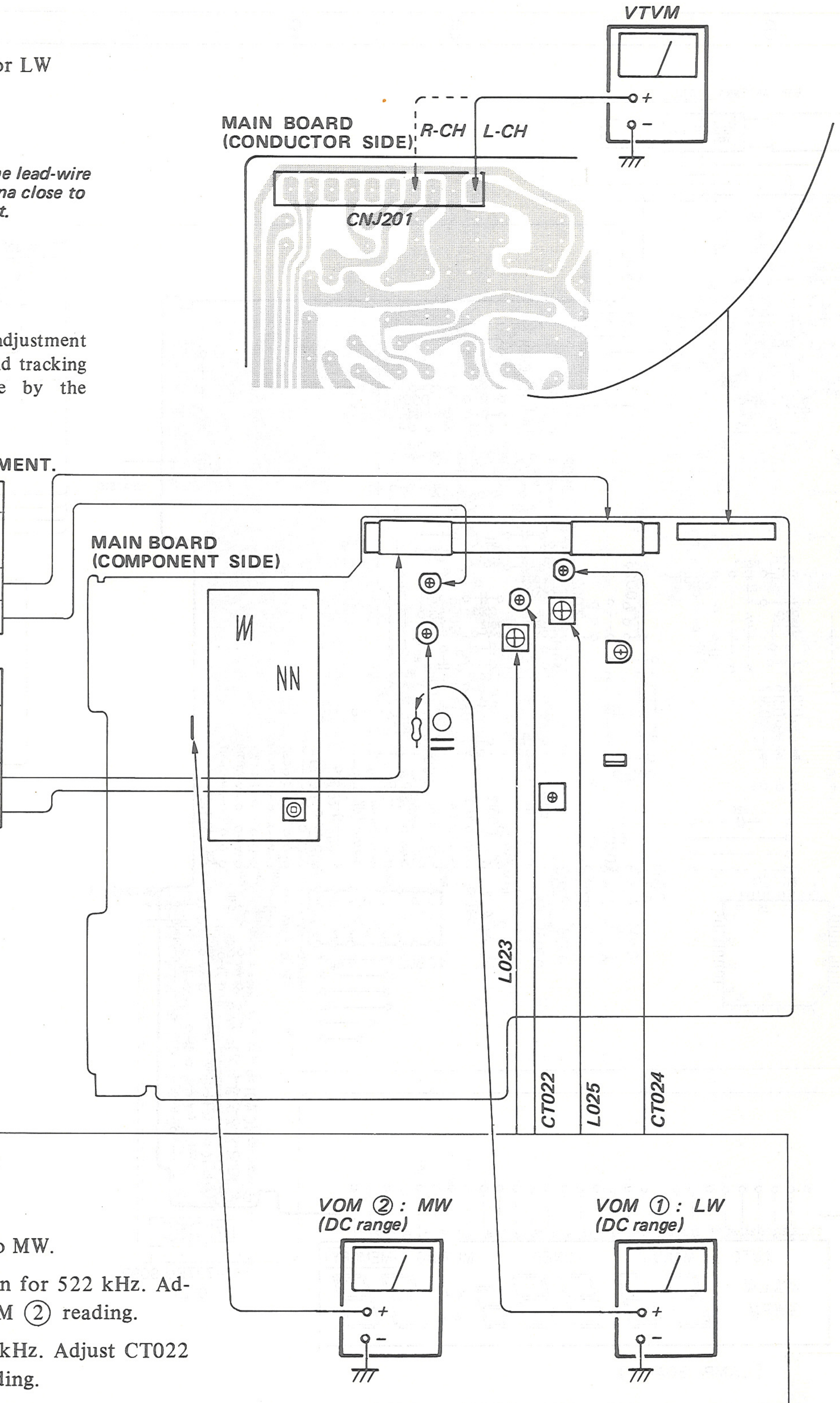

AM rf signal generator
Put the lead-wire antenna close to the set.
30% amplitude modulation by 400 Hz signal

- Repeat the procedures in each adjustment several times, and the OSC voltage and tracking adjustments should be finally done by the trimmer capacitors.

- **Perform after LW TRACKING ADJUSMENT.**

MW TRACKING ADJUSTMENT	
Adjust for a maximum reading on VTVM.	
603 kHz	L022
1,404 kHz	CT021

LW TRACKING ADJUSTMENT	
Adjust for a maximum reading on VTVM.	
162 kHz	L022
270 kHz	CT023


VTVM
+
−
MAIN BOARD (CONDUCTOR SIDE)
R-CH
L-CH
CNJ201
MAIN BOARD (COMPONENT SIDE)
L023
CT022
L025
CT024
VOM ②: MW (DC range)
VOM ①: LW (DC range)

MW/LW OSC Voltage Adjustment

Procedure:

1. Set BAND selector switch to MW.
2. Push TUNING (+, −) button for 522 kHz. Adjust L023 for 1 – 1.1 V VOM ② reading.
3. Push the button for 1,611 kHz. Adjust CT022 for 8 – 8.5 V VOM ② reading.
4. Set BAND selector switch to LW.
5. Push TUNING (+, −) button for 144 kHz. Adjust L025 for 1 – 1.1 V VOM ① reading.
6. Push the button for 288 kHz. Adjust CT024 for 8 – 8.5 V VOM ① reading.

MEMO

SECTION 2
DIAGRAMS

2-1. PRINTED WIRING BOARDS

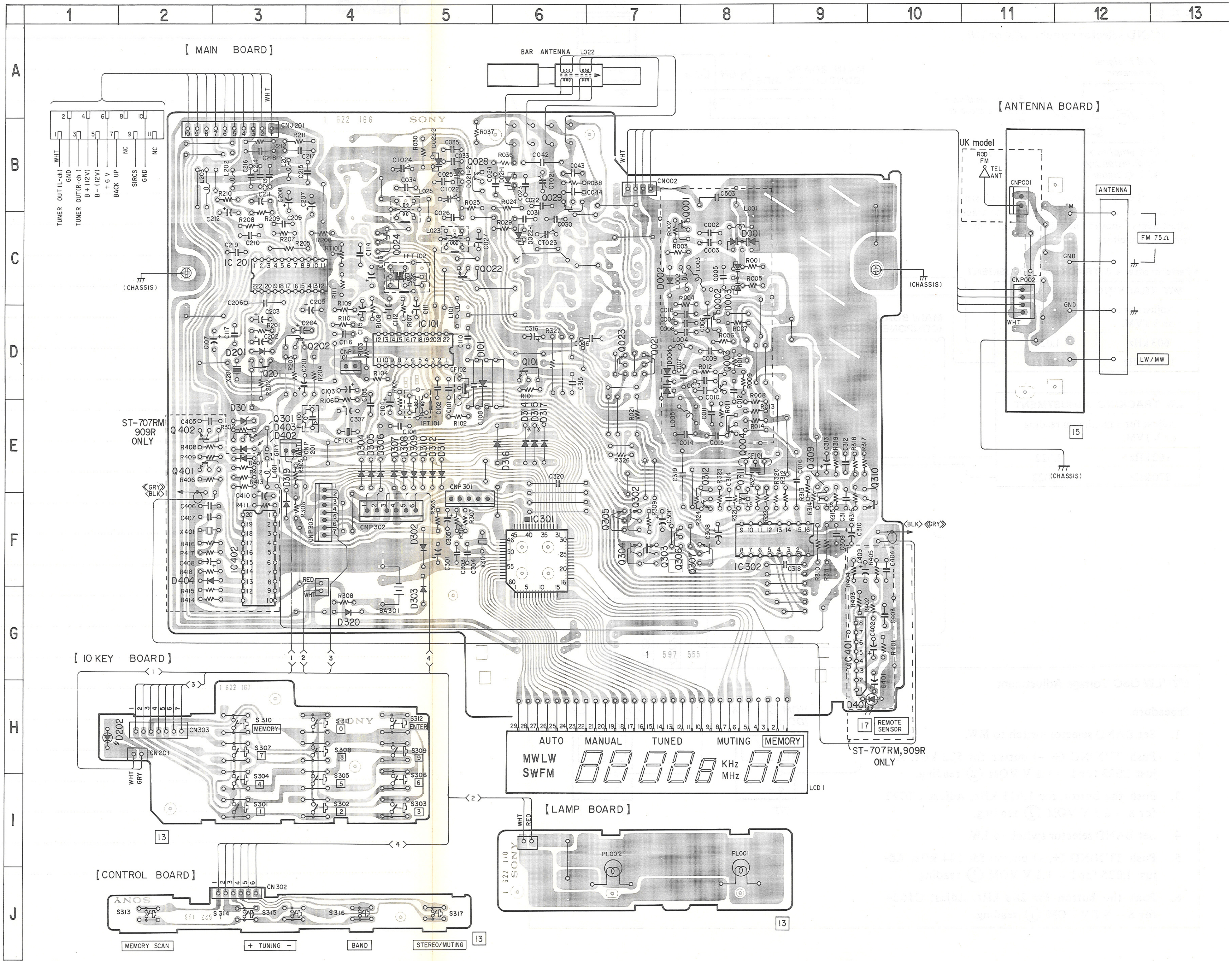
. See page 14 for Semiconductor Lead Layouts.

Note:

- ■ : parts mounted on the conductor side.
- [:]- indicates side identified with part number.

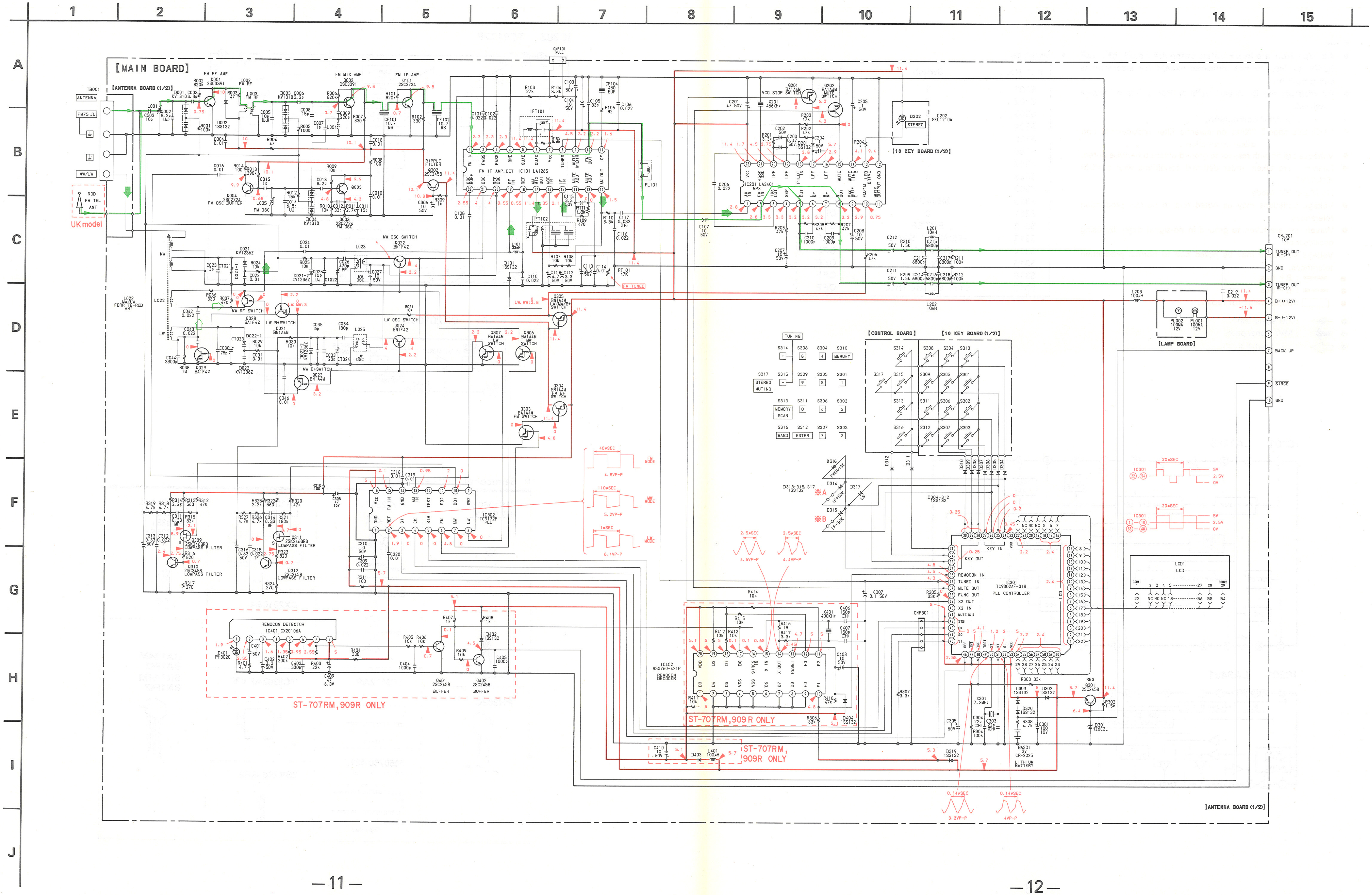
. Semiconductor Location

Ref. No.		Ref. No.	
IC101	D-4	D004	D-7
IC201	C-3	D021-1	B-5
IC301	F-6	D021-2	B-5
IC302	F-8	D022-1	C-6
IC401	G-9	D022-2	B-5
IC402	F-3	D101	D-5
Q001	C-7	D201	D-3
Q002	D-8	D202	H-1
Q003	D-8	D301	E-3
Q004	E-8	D302	F-5
Q021	D-7	D303	F-5
Q022	C-5	D304	E-4
Q023	D-7	D305	E-4
Q024	C-4	D306	E-4
Q028	B-5	D307	E-4
Q029	B-6	D308	E-4
Q101	D-6	D309	E-4
Q201	D-3	D310	E-5
Q202	D-3	D311	E-5
Q301	E-3	D312	E-5
Q302	F-7	D314	E-6
Q303	F-7	D315	E-6
Q304	F-7	D316	E-5
Q305	F-7	D317	E-6
Q306	F-7	D319	F-3
Q307	F-7	D320	G-4
Q309	F-9	D401	H-9
Q310	F-9	D402	E-3
Q311	E-8	D403	E-3
Q312	E-8	D404	F-2
Q401	E-2		
Q402	E-2		
D001	C-8		
D002	C-7		
D003	C-8		


1
2
3
4
5
6
7
8
9
10
11
12
13
A
B
C
D
E
F
G
H
I
J
[MAIN BOARD]
BAR ANTENNA L022
[ANTENNA BOARD]
UK model
ANTENNA
FM
FM 75Ω
GND
LW/MW
(CHASSIS)
TUNER OUT (L-ch)
GND
TUNER OUT (R-ch)
B+ (12V)
B- (12V)
+6V
BACK UP
NC
SIRCS
GND
NC
WHT
CNJ201
CN002
CNP001
CNP002
IC201
IC101
IC301
IC302
IC402
IC401
ST-707RM 909R ONLY
ST-707RM, 909R ONLY
《GRY》《BLK》
《BLK》《GRY》
[10 KEY BOARD]
CN303
CN201
S310 MEMORY
S311
S312 ENTER
S307 7
S308 8
S309 9
S304 4
S305 5
S306 6
S301 1
S302 2
S303 3
WHT GRY
13
15
17 REMOTE SENSOR
AUTO
MANUAL
TUNED
MUTING
MEMORY
MWLW
SWFM
KHz
MHz
LCD1
[LAMP BOARD]
PL002
PL001
WHT RED
[CONTROL BOARD]
CN302
S313
S314
S315
S316
S317
MEMORY SCAN
+ TUNING −
BAND
STEREO/MUTING
BA301

2-2. SCHEMATIC DIAGRAM

. See page 13 for note.



1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
A B C D E F G H I J
[MAIN BOARD]
[ANTENNA BOARD (1/2)]
TB001
ANTENNA
FM75
MW/LW
ROD1 FM TEL ANT
UK model
FM RF AMP Q001 2SC3391
FM MIX AMP Q002 2SC3391
FM IF AMP Q101 2SC2724
FM OSC BUFFER Q004 2SC2724
FM OSC Q003 2SC2724
RIPPLE FILTER Q302 2SC2458
FM IF AMP.DET IC101 LA1265
IC201 LA3401 MPX
VCO STOP SWITCH Q201 BA1A4M
MUTE SWITCH Q202 BA1A4M
D202 SEL1210W STEREO
[10 KEY BOARD (1/2)]
FL101
CF101 10.7 MS
CF102 10.7 MS
IFT101
IFT102
CNP101 NULL
MW OSC SWITCH Q022 BN1F4Z
MW RF SWITCH
LW B+SWITCH Q021 BN1A4M
LW OSC SWITCH Q024 BN1F4Z
MW B+SWITCH Q023 BN1A4M
L022 MW/LW FERRITE-ROD ANT
LW SWITCH Q307 BA1A4M
MW SWITCH Q306 BA1A4M
LW/MW/FM SWITCH Q305 BN1A4M
FM B+ SWITCH Q304 BN1A4M
FM SWITCH Q303 BA1A4M
FM TUNED
CNJ201 10P
TUNER OUT (L-CH)
GND
TUNER OUT (R-CH)
B+ (+12V)
B- (-12V)
BACK UP
SIRCS
GND
[LAMP BOARD]
PL002 100MA 12V
PL001 100MA 12V
[CONTROL BOARD]
TUNING
S314 S308 S304 S310 MEMORY
S317 S315 S309 S305 S301
STEREO MUTING
S313 S311 S306 S302
MEMORY SCAN
S316 S312 S307 S303
BAND ENTER
D316 FM/MW/LW
D313-315, 317 1SS132
D304-312 1SS132
IC302 TC9172P PLL
LOWPASS FILTER Q309 2SK246GR3
LOWPASS FILTER Q310 2SC2458
LOWPASS FILTER Q311 2SK246GR3
LOWPASS FILTER Q312 2SC2458
40μSEC 4.8VP-P FM MODE
110μSEC 5.2VP-P MW MODE
1mSEC 6.4VP-P LW MODE
2.5μSEC 4.6VP-P
2.5μSEC 4.4VP-P
REMOCON DETECTOR IC401 CX20106A
D401 PH302C
Q401 2SC2458 BUFFER
Q402 2SC2458 BUFFER
ST-707RM,909R ONLY
IC402 M50760-421P REMOCON DECODER
ST-707RM,909R ONLY
ST-707RM, 909R ONLY
X401 400KHz
IC301 TC9302AF-018 PLL CONTROLLER
KEY IN
KEY OUT
REMOCON IN
TUNED IN
MUTE OUT
FUNC OUT
X2 OUT
X2 IN
CNP301
LCD1 LCD
X301 7.2MHz
BA301 3V CR-2025 LITHIUM BATTERY
REG Q301 2SC2458
D301 HZ6C3L
20μSEC 5V 2.5V 0V
0.14μSEC 3.2VP-P
0.14μSEC 4VP-P
[ANTENNA BOARD (1/2)]

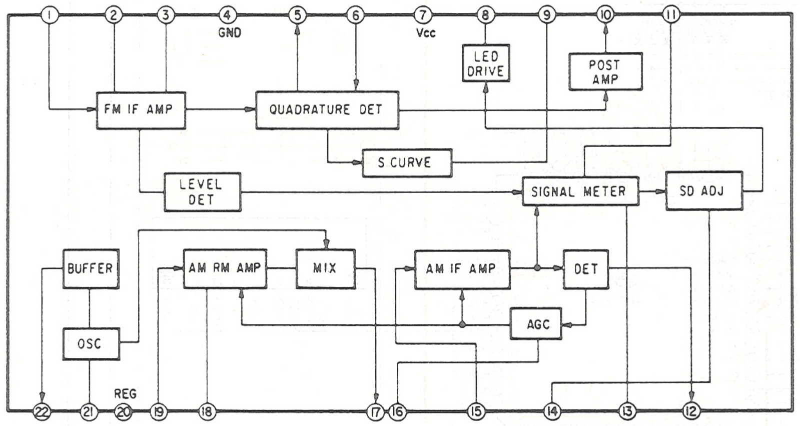
Note:

- All capacitors are in μF unless otherwise noted. pF: μμF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and 1/4 W or less unless otherwise specified.
- △ : internal component.
- *A·B: See page 3 "Note on ceramic filter replacement and diode connection".
- Voltages are dc with respect to ground unless otherwise noted.
- Readings are taken under detuned conditions with a VOM (50kΩ/V).
  No Mark: FM Mode
- Voltage variations may be noted due to normal production tolerances.
- Waveforms are taken to ground in no-signal mode by using oscilloscope.
  Voltage variations may be noted due to normal production tolerances.
- ▬ : B+ bus.
- ▬ ▬ : B– bus.
- ▭ : adjustment for repair.
- → : FM signal path.
- ➡ : MW signal path.
- ⇨ : LW signal path.

- Switches:

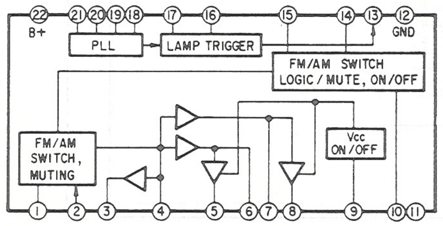
Ref. No.	Switch	Position
S301	1	OFF
S302	2	OFF
S303	3	OFF
S304	4	OFF
S305	5	OFF
S306	6	OFF
S307	7	OFF
S308	8	OFF
S309	9	OFF
S310	MEMORY	OFF
S311	0	OFF
S312	ENTER	OFF
S313	MEMORY SCAN	OFF
S314	TUNING +	OFF
S315	TUNING –	OFF
S316	BAND	OFF
S317	STEREO MUTING	OFF

IC101 LA1265



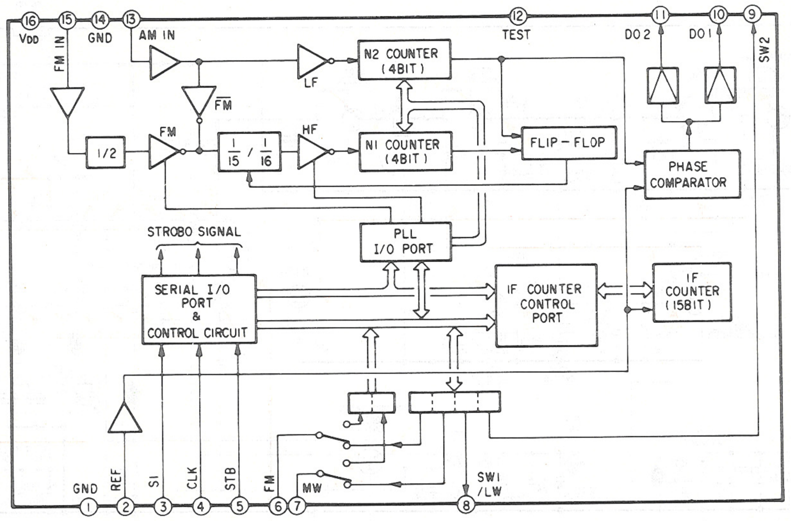
GND
Vcc
LED DRIVE
POST AMP
FM IF AMP
QUADRATURE DET
S CURVE
LEVEL DET
SIGNAL METER
SD ADJ
BUFFER
AM RM AMP
MIX
AM IF AMP
DET
AGC
OSC
REG

IC201 LA3401



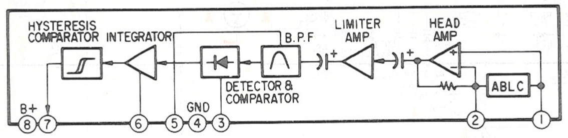
B+
PLL
LAMP TRIGGER
GND
FM/AM SWITCH LOGIC/MUTE, ON/OFF
FM/AM SWITCH, MUTING
Vcc ON/OFF

IC302 TC9172P



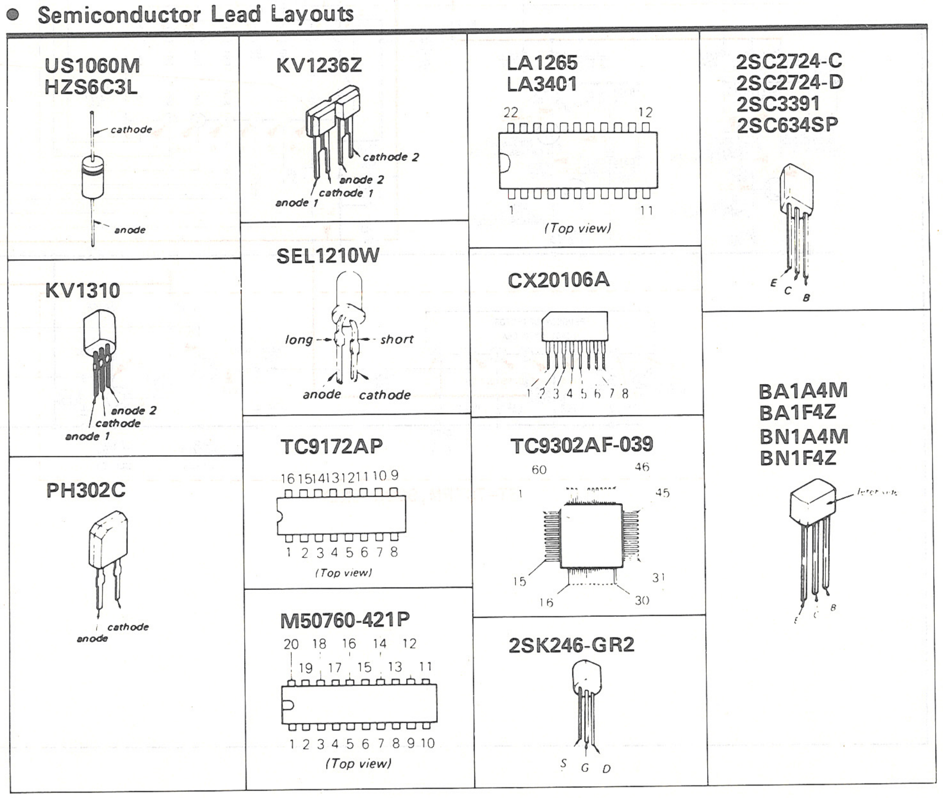
VDD
FM IN
GND
AM IN
N2 COUNTER (4BIT)
TEST
DO2
DO1
SW2
LF
FM
1/2
1/15 / 1/16
HF
N1 COUNTER (4BIT)
FLIP-FLOP
PHASE COMPARATOR
STROBO SIGNAL
PLL I/O PORT
SERIAL I/O PORT & CONTROL CIRCUIT
IF COUNTER CONTROL PORT
IF COUNTER (15BIT)
GND
REF
SI
CLK
STB
FM
MW
SW1 /LW

IC401 CX20106A



HYSTERESIS COMPARATOR
INTEGRATOR
B.P.F
LIMITER AMP
HEAD AMP
DETECTOR & COMPARATOR
ABLC
GND
B+

- Semiconductor Lead Layouts



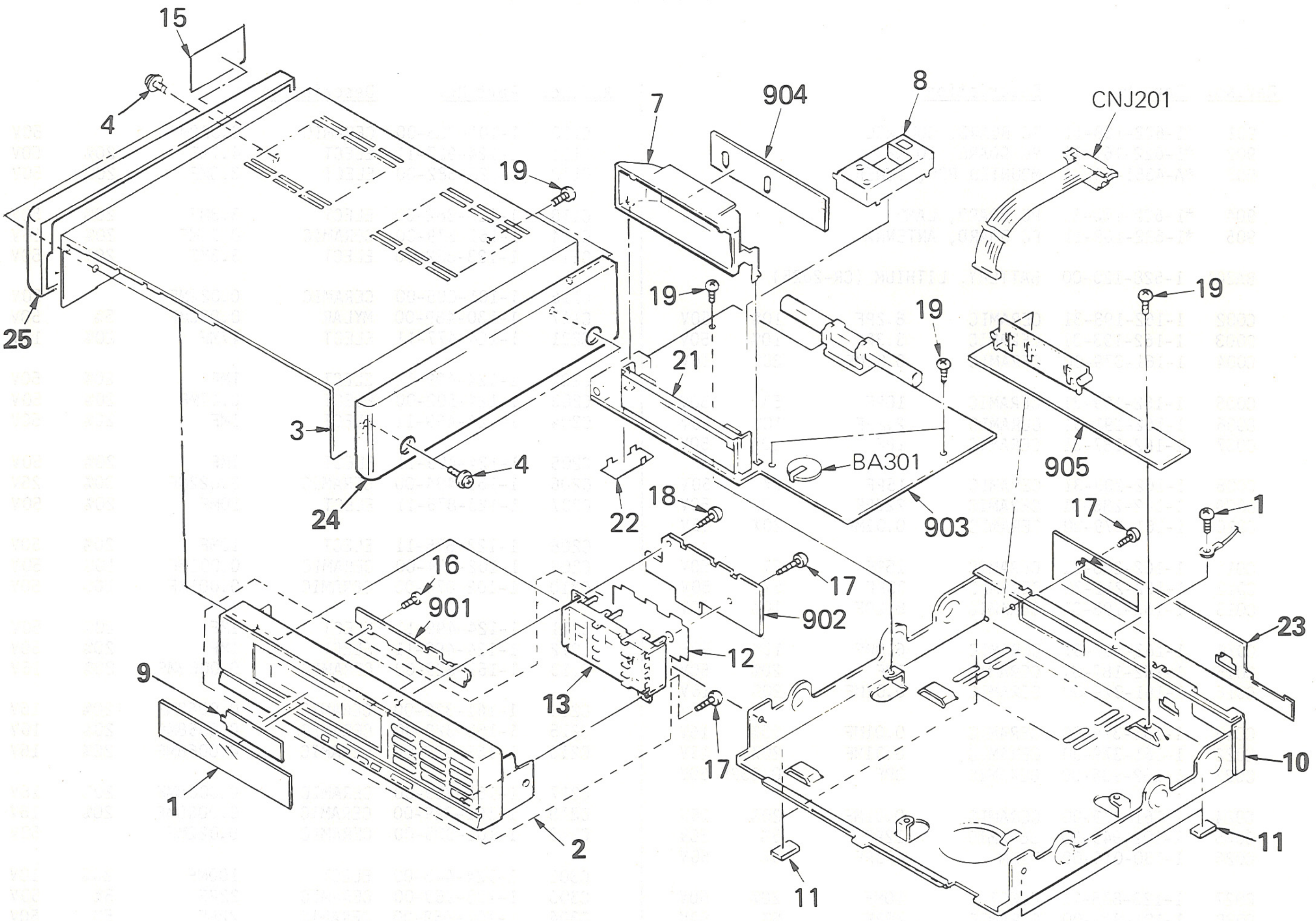
US1060M
HZS6C3L
cathode
anode
KV1236Z
cathode 2
anode 2
cathode 1
anode 1
LA1265
LA3401
22
12
1
11
(Top view)
2SC2724-C
2SC2724-D
2SC3391
2SC634SP
E
C
B
KV1310
anode 2
cathode
anode 1
SEL1210W
long
short
anode
cathode
CX20106A
1 2 3 4 5 6 7 8
TC9172AP
16 15 14 13 12 11 10 9
1 2 3 4 5 6 7 8
(Top view)
TC9302AF-039
60
46
45
1
15
16
30
31
PH302C
cathode
anode
M50760-421P
20 18 16 14 12
19 17 15 13 11
1 2 3 4 5 6 7 8 9 10
(Top view)
2SK246-GR2
S
G
D
BA1A4M
BA1F4Z
BN1A4M
BN1F4Z

SECTION 3
EXPLODED VIEWS

NOTE:

- The mechanical parts with no reference number in the exploded views are not supplied.
- The construction parts of an assembled part are indicated with a collation number in the remark column.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- Due to standardization, parts with part number suffix -XX and -X may be different from the parts specified in the components used on the set.
- Color Indication of Appearance Parts Example:
  (RED) ... KNOB, BALANCE (WHITE)
  ↑ Cabinet's Color ↑ Parts Color

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.



No.	Part No.	Description
1	4-920-874-01	PLATE (ST), ORNAMENTAL
2	X-4919-643-1	PANEL ASSY, FRONT
3	4-920-137-01	CASE
4	4-886-821-51	SCREW (CASE) (M3X14)
5	------------	
6	*4-909-705-01	PLATE, SHIELD
7	*4-917-275-01	HOUSE, LAMP
8	*4-874-704-01	CASE, SHIELD
9	4-920-872-01	PLATE (ST), INDICATION
10	*4-919-617-01	CHASSIS
11	4-919-608-01	FOOT
12	*4-919-607-01	SPACER
13	*4-919-614-01	RETAINER, BUTTON
15	*4-922-718-01	LABEL, MODEL NUMBER (AE)
16	7-685-133-19	SCREW +P 2.6X6 TYPE2 SLIT
17	7-685-647-79	SCREW +BVTP 3X10 TYPE2 N-S
18	7-685-646-79	SCREW +BVTP 3X8 TYPE2 N-S
19	7-682-147-01	SCREW +BVTT 3X6 (S)
20	------------	
21	*4-909-633-01	ILLUMINATOR
22	*4-920-149-01	PLATE (A), SHIELD
23	*4-919-613-71	COVER, REAR
24	4-922-759-01	PLATE (A-RIGHT), SIDE
25	4-922-760-01	PLATE (A-LEFT), SIDE
901	*1-622-168-11	PC BOARD, CONTROL
902	*1-622-167-11	PC BOARD, 10 KEY
903	*A-4351-646-A	MOUNTED PCB, TUNER
904	*1-622-170-11	PC BOARD, LAMP
905	*1-622-169-11	PC BOARD, ANTENNA
BA301	1-528-120-00	BATTERY, LITHIUM (CR-2025)
CNJ201	1-559-816-11	CORD (WITH CONNECTOR) 10P

SECTION 4
ELECTRICAL PARTS LIST

NOTE:

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- If there are two or more same circuits in a set such as a stereophonic machine, only typical circuit parts may be indicated and capacitors and resistors in other same circuits may be omitted.

CAPACITORS:
MF: μF, PF: μμF.

RESISTORS
- All resistors are in ohms.
- F: nonflammable

COILS
- MMH: mH, UH: μH

SEMICONDUCTORS
In each case, U: μ, for example:
UA...: μA..., UPA...: μPA...,
UPC...: μPC, UPD...: μPD...

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Ref.No.	Part No.	Description			
901	*1-622-168-11	PC BOARD, CONTROL			
902	*1-622-167-11	PC BOARD, 10 KEY			
903	*A-4351-646-A	MOUNTED PCB, TUNER			
904	*1-622-170-11	PC BOARD, LAMP			
905	*1-622-169-11	PC BOARD, ANTENNA			
BA301	1-528-120-00	BATTERY, LITHIUM (CR-2025)			
C002	1-162-198-31	CERAMIC	8.2PF	10%	50V
C003	1-162-193-31	CERAMIC	3.3PF	10%	50V
C004	1-161-379-00	CERAMIC	0.01MF	20%	16V
C005	1-162-199-31	CERAMIC	10PF	5%	50V
C006	1-162-191-31	CERAMIC	2.2PF	10%	50V
C007	1-162-187-31	CERAMIC	1PF	20%	50V
C008	1-162-203-31	CERAMIC	15PF	5%	50V
C009	1-162-286-31	CERAMIC	220PF	10%	50V
C010	1-161-379-00	CERAMIC	0.01MF	20%	16V
C011	1-162-203-31	CERAMIC	15PF	5%	50V
C012	1-162-211-31	CERAMIC	33PF	5%	50V
C013	1-162-198-31	CERAMIC	8.2PF	10%	50V
C014	1-162-197-31	CERAMIC	6.8PF	10%	50V
C015	1-162-187-31	CERAMIC	1PF	20%	50V
C016	1-161-379-00	CERAMIC	0.01MF	20%	16V
C018	1-161-379-00	CERAMIC	0.01MF	20%	16V
C022	1-161-379-00	CERAMIC	0.01MF	20%	16V
C023	1-102-936-00	CERAMIC	3PF	0.25PF	50V
C024	1-161-379-00	CERAMIC	0.01MF	20%	16V
C025	1-102-949-00	CERAMIC	12PF	5%	50V
C026	1-130-014-00	FILM	470PF	5%	50V
C027	1-123-875-11	ELECT	10MF	20%	50V
C030	1-101-890-00	CERAMIC	75PF	5%	50V
C031	1-161-379-00	CERAMIC	0.01MF	20%	16V
C033	1-102-816-00	CERAMIC	120PF	5%	50V
C034	1-130-047-00	FILM	180PF	5%	50V
C035	1-102-942-00	CERAMIC	5PF	0.5PF	50V
C042	1-161-494-00	CERAMIC	0.022MF	30%	25V
C043	1-101-005-00	CERAMIC	0.022MF		50V
C044	1-161-327-00	CERAMIC	0.0033MF	20%	16V
C046	1-161-379-00	CERAMIC	0.01MF	20%	16V
C101	1-101-005-00	CERAMIC	0.022MF		50V
C102	1-101-005-00	CERAMIC	0.022MF		50V
C103	1-124-499-11	ELECT	1MF	20%	50V
C104	1-123-875-11	ELECT	10MF	20%	50V
C105	1-162-211-31	CERAMIC	33PF	5%	50V
C106	1-101-005-00	CERAMIC	0.022MF		50V
C107	1-123-875-11	ELECT	10MF	20%	50V
C108	1-161-379-00	CERAMIC	0.01MF	20%	16V
C110	1-101-005-00	CERAMIC	0.022MF		50V
C111	1-124-927-11	ELECT	4.7MF	20%	50V
C112	1-123-382-00	ELECT	3.3MF	20%	50V
C113	1-123-382-00	ELECT	3.3MF	20%	50V
C114	1-161-379-00	CERAMIC	0.01MF	20%	16V
C115	1-123-382-00	ELECT	3.3MF	20%	50V
C116	1-101-005-00	CERAMIC	0.022MF		50V
C117	1-130-489-00	MYLAR	0.033MF	5%	50V
C201	1-124-477-11	ELECT	47MF	20%	16V
C202	1-124-499-11	ELECT	1MF	20%	50V
C203	1-124-902-00	ELECT	0.47MF	20%	50V
C204	1-124-499-11	ELECT	1MF	20%	50V
C205	1-124-499-11	ELECT	1MF	20%	50V
C206	1-161-494-00	CERAMIC	0.022MF	30%	25V
C207	1-123-875-11	ELECT	10MF	20%	50V
C208	1-123-875-11	ELECT	10MF	20%	50V
C209	1-102-074-00	CERAMIC	0.001MF	10%	50V
C210	1-102-074-00	CERAMIC	0.001MF	10%	50V
C211	1-124-499-11	ELECT	1MF	20%	50V
C212	1-124-499-11	ELECT	1MF	20%	50V
C213	1-161-329-00	CERAMIC	0.0068MF	20%	16V
C214	1-161-329-00	CERAMIC	0.0068MF	20%	16V
C215	1-161-329-00	CERAMIC	0.0068MF	20%	16V
C216	1-161-329-00	CERAMIC	0.0068MF	20%	16V
C217	1-161-329-00	CERAMIC	0.0068MF	20%	16V
C218	1-161-329-00	CERAMIC	0.0068MF	20%	16V
C219	1-101-005-00	CERAMIC	0.022MF		50V
C301	1-124-443-00	ELECT	100MF	20%	10V
C303	1-102-959-00	CERAMIC	22PF	5%	50V
C304	1-102-959-00	CERAMIC	22PF	5%	50V
C305	1-124-499-11	ELECT	1MF	20%	50V
C306	1-123-875-11	ELECT	10MF	20%	50V
C307	1-124-463-00	ELECT	0.1MF	20%	50V
C308	1-124-477-11	ELECT	47MF	20%	16V
C309	1-101-005-00	CERAMIC	0.022MF		50V
C310	1-123-875-11	ELECT	10MF	20%	50V
C311	1-136-171-00	FILM	0.33MF	5%	50V
C312	1-130-487-00	MYLAR	0.022MF	5%	50V
C313	1-124-252-00	ELECT	0.33MF	20%	50V
C314	1-136-171-00	FILM	0.33MF	5%	50V
C315	1-130-487-00	MYLAR	0.022MF	5%	50V
C316	1-124-252-00	ELECT	0.33MF	20%	50V
C318	1-161-379-00	CERAMIC	0.01MF	20%	16V
C319	1-161-379-00	CERAMIC	0.01MF	20%	16V
C320	1-161-379-00	CERAMIC	0.01MF	20%	16V

Ref.No.	Part No.	Description			
C401	1-124-499-11	ELECT	1MF	20%	50V
C402	1-123-382-00	ELECT	3.3MF	20%	50V
C403	1-162-288-31	CERAMIC	330PF	10%	50V
C404	1-162-294-31	CERAMIC	0.001MF	10%	50V
C405	1-162-294-31	CERAMIC	0.001MF	10%	50V
C406	1-101-361-00	CERAMIC	150PF	5%	50V
C407	1-101-361-00	CERAMIC	150PF	5%	50V
C408	1-123-875-11	ELECT	10MF	20%	50V
C409	1-124-477-11	ELECT	47MF	20%	16V
C410	1-123-875-11	ELECT	10MF	20%	50V
C503	1-162-199-31	CERAMIC	10PF	5%	50V
CF101	1-567-389-11	FILTER, CERAMIC			
CF102	1-567-389-11	FILTER, CERAMIC			
CF104	1-527-981-00	FILTER, CERAMIC			
CNJ201	1-559-816-11	CORD (WITH CONNECTOR)			
CNP002	*1-564-337-00	PIN, CONNECTOR 3P			
CNP101	*1-560-060-00	PIN, CONNECTOR 2P			
CNP201	*1-564-336-00	PIN, CONNECTOR 2P			
CNP301	*1-560-063-00	PIN, CONNECTOR 5P			
CNP302	*1-560-064-00	PIN, CONNECTOR 6P			
CNP303	*1-564-341-11	PIN, CONNECTOR 7P			
CT021	1-141-227-00	CAP, CERAMIC TRIMMER			
CT022	1-141-227-00	CAP, CERAMIC TRIMMER			
CT023	1-141-227-00	CAP, CERAMIC TRIMMER			
CT024	1-141-227-00	CAP, CERAMIC TRIMMER			
D001	8-719-918-45	DIODE KV1310			
D002	8-719-000-26	DIODE US1060M			
D003	8-719-918-45	DIODE KV1310			
D004	8-719-918-45	DIODE KV1310			
D021	8-719-923-64	DIODE KV1236Z			
D022	8-719-923-64	DIODE KV1236Z			
D101	8-719-000-26	DIODE US1060M			
D201	8-719-000-26	DIODE US1060M			
D202	8-719-303-13	DIODE SEL1210W			
D301	8-719-933-41	DIODE HZS6C3L			
D302	8-719-000-26	DIODE US1060M			
D303	8-719-000-26	DIODE US1060M			
D304	8-719-000-26	DIODE US1060M			
D305	8-719-000-26	DIODE US1060M			
D306	8-719-000-26	DIODE US1060M			
D307	8-719-000-26	DIODE US1060M			
D308	8-719-000-26	DIODE US1060M			
D309	8-719-000-26	DIODE US1060M			
D310	8-719-000-26	DIODE US1060M			
D311	8-719-000-26	DIODE US1060M			
D312	8-719-000-26	DIODE US1060M			
D314	8-719-000-26	DIODE US1060M			
D315	8-719-000-26	DIODE US1060M			
D316	8-719-000-26	DIODE US1060M			
D317	8-719-000-26	DIODE US1060M			
D319	8-719-000-26	DIODE US1060M			
D320	8-719-000-26	DIODE US1060M			
D401	8-719-123-68	PH302C			
D402	8-719-000-26	DIODE US1060M			
D403	8-719-000-26	DIODE US1060M			
D404	8-719-000-26	DIODE US1060M			
FL101	1-235-126-00	ENCAPSULATED COMPONENT			
IC101	8-759-801-81	IC LA1265			
IC201	8-759-801-80	IC LA3401			
IC301	8-759-230-50	IC TC9302AF-039			

Ref.No.	Part No.	Description			
IC302	8-759-230-16	IC TC9172AP			
IC401	8-759-602-54	IC CX20106A			
IC402	8-759-603-43	IC M50760-421P			
IFT101	1-404-659-11	COIL, DISCRIMINATOR			
IFT102	1-404-713-11	TRANSFORMER, IF			
L001	*1-422-336-11	COIL, AIR-CORE			
L002	*1-422-040-00	COIL, AIR-CORE			
L003	*1-422-081-00	COIL (WITH CORE)			
L004	*1-422-039-00	COIL, AIR-CORE			
L005	1-459-396-00	COIL (WITH CORE)			
L022	1-402-151-11	ANTENNA, FERRITE-ROD (LW/MW)			
L023	1-406-089-11	COIL (OSC)			
L025	1-406-207-11	COIL, LW (OSC)			
L101	1-408-930-00	INDUCTOR	33MMH		
L201	1-408-924-00	INDUCTOR	10MMH		
L202	1-408-924-00	INDUCTOR	10MMH		
L203	1-410-601-21	INDUCTOR	100UH		
L401	1-410-601-21	INDUCTOR	100UH		
LCD1	1-807-453-41	DISPLAY PANEL, LIQUID CRYSTAL			
PL001	1-518-527-51	LAMP, PILOT			
PL002	1-518-527-51	LAMP, PILOT			
Q001	8-729-304-38	TRANSISTOR 2SC3391			
Q002	8-729-304-38	TRANSISTOR 2SC3391			
Q003	8-729-672-42	TRANSISTOR 2SC2724-C			
Q004	8-729-672-42	TRANSISTOR 2SC2724-C			
Q021	8-729-115-15	TRANSISTOR BN1A4M			
Q022	8-729-115-33	TRANSISTOR BN1F4Z			
Q023	8-729-115-15	TRANSISTOR BN1A4M			
Q024	8-729-115-33	TRANSISTOR BN1F4Z			
Q028	8-729-115-93	TRANSISTOR BA1F4Z			
Q029	8-729-115-79	TRANSISTOR BA1A4M			
Q101	8-729-672-43	TRANSISTOR 2SC2724-D			
Q201	8-729-115-79	TRANSISTOR BA1A4M			
Q202	8-729-115-79	TRANSISTOR BA1A4M			
Q301	8-729-600-27	TRANSISTOR 2SC634SP			
Q302	8-729-600-27	TRANSISTOR 2SC634SP			
Q303	8-729-115-79	TRANSISTOR BA1A4M			
Q304	8-729-115-15	TRANSISTOR BN1A4M			
Q305	8-729-115-15	TRANSISTOR BN1A4M			
Q306	8-729-115-79	TRANSISTOR BA1A4M			
Q307	8-729-115-79	TRANSISTOR BA1A4M			
Q309	8-729-201-56	TRANSISTOR 2SK246GR2			
Q310	8-729-600-27	TRANSISTOR 2SC634SP			
Q311	8-729-201-56	TRANSISTOR 2SK246GR2			
Q312	8-729-600-27	TRANSISTOR 2SC634SP			
Q401	8-729-600-27	TRANSISTOR 2SC634SP			
Q402	8-729-600-27	TRANSISTOR 2SC634SP			
R001	1-249-441-11	CARBON	100K	5%	1/4W
R002	1-215-491-00	CARBON	820K	5%	1/4W
R003	1-249-401-11	CARBON	47	5%	1/4W
R004	1-249-401-11	CARBON	47	5%	1/4W
R005	1-249-441-11	CARBON	100K	5%	1/4W
R006	1-215-491-00	CARBON	820K	5%	1/4W
R007	1-249-411-11	CARBON	330	5%	1/4W
R008	1-249-405-11	CARBON	100	5%	1/4W
R009	1-249-429-11	CARBON	10K	5%	1/4W

Ref.No.	Part No.	Description			
R010	1-249-429-11	CARBON	10K	5%	1/4W
R011	1-249-422-11	CARBON	2.7K	5%	1/4W
R012	1-249-431-11	CARBON	15K	5%	1/4W
R013	1-215-483-00	CARBON	390K	5%	1/4W
R014	1-249-405-11	CARBON	100	5%	1/4W
R021	1-249-429-11	CARBON	10K	5%	1/4W
R024	1-249-429-11	CARBON	10K	5%	1/4W
R025	1-249-429-11	CARBON	10K	5%	1/4W
R029	1-249-429-11	CARBON	10K	5%	1/4W
R030	1-249-429-11	CARBON	10K	5%	1/4W
R036	1-249-411-11	CARBON	330	5%	1/4W
R037	1-249-437-11	CARBON	47K	5%	1/4W
R038	1-247-903-00	CARBON	1M	5%	1/4W
R101	1-215-491-00	CARBON	820K	5%	1/4W
R102	1-249-411-11	CARBON	330	5%	1/4W
R103	1-249-434-11	CARBON	27K	5%	1/4W
R104	1-249-423-11	CARBON	3.3K	5%	1/4W
R105	1-249-426-11	CARBON	5.6K	5%	1/4W
R106	1-249-404-00	CARBON	82	5%	1/4W
R107	1-249-429-11	CARBON	10K	5%	1/4W
R108	1-249-429-11	CARBON	10K	5%	1/4W
R109	1-249-413-11	CARBON	470	5%	1/4W
R110	1-249-423-11	CARBON	3.3K	5%	1/4W
R111	1-249-420-11	CARBON	1.8K	5%	1/4W
R201	1-249-423-11	CARBON	3.3K	5%	1/4W
R202	1-249-437-11	CARBON	47K	5%	1/4W
R203	1-249-437-11	CARBON	47K	5%	1/4W
R204	1-249-417-11	CARBON	1K	5%	1/4W
R205	1-249-437-11	CARBON	47K	5%	1/4W
R206	1-249-437-11	CARBON	47K	5%	1/4W
R207	1-249-437-11	CARBON	47K	5%	1/4W
R208	1-249-437-11	CARBON	47K	5%	1/4W
R209	1-249-419-11	CARBON	1.5K	5%	1/4W
R210	1-249-419-11	CARBON	1.5K	5%	1/4W
R211	1-249-441-11	CARBON	100K	5%	1/4W
R212	1-249-441-11	CARBON	100K	5%	1/4W
R302	1-249-419-11	CARBON	1.5K	5%	1/4W
R303	1-249-435-11	CARBON	33K	5%	1/4W
R304	1-249-441-11	CARBON	100K	5%	1/4W
R305	1-249-435-11	CARBON	33K	5%	1/4W
R306	1-249-435-11	CARBON	33K	5%	1/4W
R307	1-249-423-11	CARBON	3.3K	5%	1/4W
R308	1-249-425-11	CARBON	4.7K	5%	1/4W
R309	1-249-417-11	CARBON	1K	5%	1/4W
R310	1-249-405-11	CARBON	100	5%	1/4W
R311	1-249-405-11	CARBON	100	5%	1/4W
R312	1-249-437-11	CARBON	47K	5%	1/4W
R313	1-249-414-11	CARBON	560	5%	1/4W
R314	1-249-421-11	CARBON	2.2K	5%	1/4W
R315	1-249-435-11	CARBON	33K	5%	1/4W
R316	1-249-416-11	CARBON	820	5%	1/4W
R317	1-249-410-11	CARBON	270	5%	1/4W
R318	1-249-425-11	CARBON	4.7K	5%	1/4W
R319	1-249-425-11	CARBON	4.7K	5%	1/4W

Ref.No.	Part No.	Description			
R320	1-249-437-11	CARBON	47K	5%	1/4W
R321	1-247-885-00	CARBON	180K	5%	1/4W
R322	1-249-414-11	CARBON	560	5%	1/4W
R323	1-249-416-11	CARBON	820	5%	1/4W
R324	1-249-410-11	CARBON	270	5%	1/4W
R325	1-249-421-11	CARBON	2.2K	5%	1/4W
R326	1-249-425-11	CARBON	4.7K	5%	1/4W
R327	1-249-425-11	CARBON	4.7K	5%	1/4W
R401	1-249-389-11	CARBON	4.7	5%	1/4W
R402	1-215-476-00	CARBON	200K	5%	1/4W
R403	1-249-433-11	CARBON	22K	5%	1/4W
R404	1-249-411-11	CARBON	330	5%	1/4W
R405	1-249-429-11	CARBON	10K	5%	1/4W
R406	1-249-429-11	CARBON	10K	5%	1/4W
R407	1-249-417-11	CARBON	1K	5%	1/4W
R408	1-249-417-11	CARBON	1K	5%	1/4W
R409	1-249-429-11	CARBON	10K	5%	1/4W
R411	1-249-429-11	CARBON	10K	5%	1/4W
R412	1-249-429-11	CARBON	10K	5%	1/4W
R413	1-249-429-11	CARBON	10K	5%	1/4W
R414	1-249-429-11	CARBON	10K	5%	1/4W
R415	1-249-429-11	CARBON	10K	5%	1/4W
R416	1-247-903-00	CARBON	1M	5%	1/4W
R417	1-249-423-11	CARBON	3.3K	5%	1/4W
R418	1-249-437-11	CARBON	47K	5%	1/4W
TB001	*1-537-138-21	TERMINAL BOARD (ANT)			
RT101	1-228-996-00	RES, ADJ, CARBON 47K			
S301	1-554-303-21	SWITCH, KEY BOARD			
S302	1-554-303-21	SWITCH, KEY BOARD			
S303	1-554-303-21	SWITCH, KEY BOARD			
S304	1-554-303-21	SWITCH, KEY BOARD			
S305	1-554-303-21	SWITCH, KEY BOARD			
S306	1-554-303-21	SWITCH, KEY BOARD			
S307	1-554-303-21	SWITCH, KEY BOARD			
S308	1-554-303-21	SWITCH, KEY BOARD			
S309	1-554-303-21	SWITCH, KEY BOARD			
S310	1-554-303-21	SWITCH, KEY BOARD			
S311	1-554-303-21	SWITCH, KEY BOARD			
S312	1-554-303-21	SWITCH, KEY BOARD			
S313	1-570-876-11	SWITCH, KEY BOARD			
S314	1-570-876-11	SWITCH, KEY BOARD			
S315	1-570-876-11	SWITCH, KEY BOARD			
S316	1-570-876-11	SWITCH, KEY BOARD			
S317	1-570-876-11	SWITCH, KEY BOARD			
X201	1-567-250-11	OSCILLATOR, CERAMIC			
X301	1-567-736-11	VIBRATOR, CRYSTAL			
X401	1-527-532-00	OSCILLATOR, CERAMIC			

English
88C1644-1
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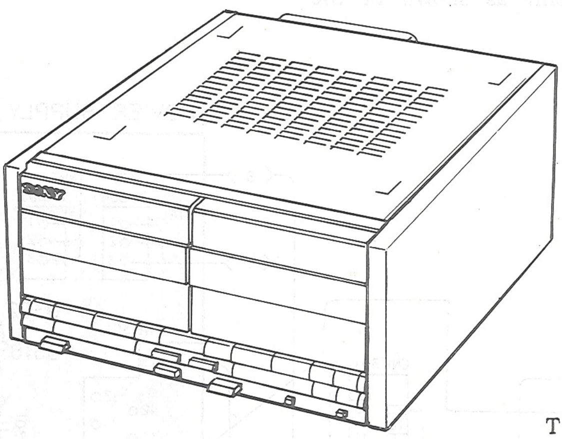
Published by A/V Engineering Service Dept.

Sony Corporation
Audio Group

TC-WR808M

SERVICE MANUAL

AEP Model
US Model



TC-WR808M is the STEREO CASSETTE DECK in MHC-3000/3000CD.

SPECIFICATIONS

Recording system	4-track 2-channel stereo
Frequency response	DOLBY NR OFF (DIN) With TYPE IV cassette (Sony METAL-ES) 40 to 15,000 Hz (±3 dB) With TYPE II cassette (Sony UX-S) 40 to 14,000 Hz (±3 dB) With TYPE I cassette (Sony HF-X) 40 to 13,000 Hz (±3 dB)
Wow and flutter	0.1% WRMS (NAB) ±0.2% (DIN)
Dimensions	Approx. 245 × 120 × 260 mm (w/h/d) (9 3/4 × 4 3/4 × 10 1/4 inches) incl. projecting parts and controls
Weight	Approx. 3.0 kg (6 lb 11 oz)

0dB = 0.775V

MODEL IDENTIFICATION

AEP, US model

SONY® MODEL NO. TC-WR808M
STEREO CASSETTE DECK

West Germany model

SONY® MODEL NO. MHC-3000
MINI HI-FI COMPONENT SYSTEM
TC-WR808M: STEREO CASSETTE DECK

MICROFILM

STEREO CASSETTE DECK
SONY®

[To apply B + voltage]

The power of this units is fed from other unit. When the unit operates individually, connect the regulated power supply to the point as shown in the below figure.

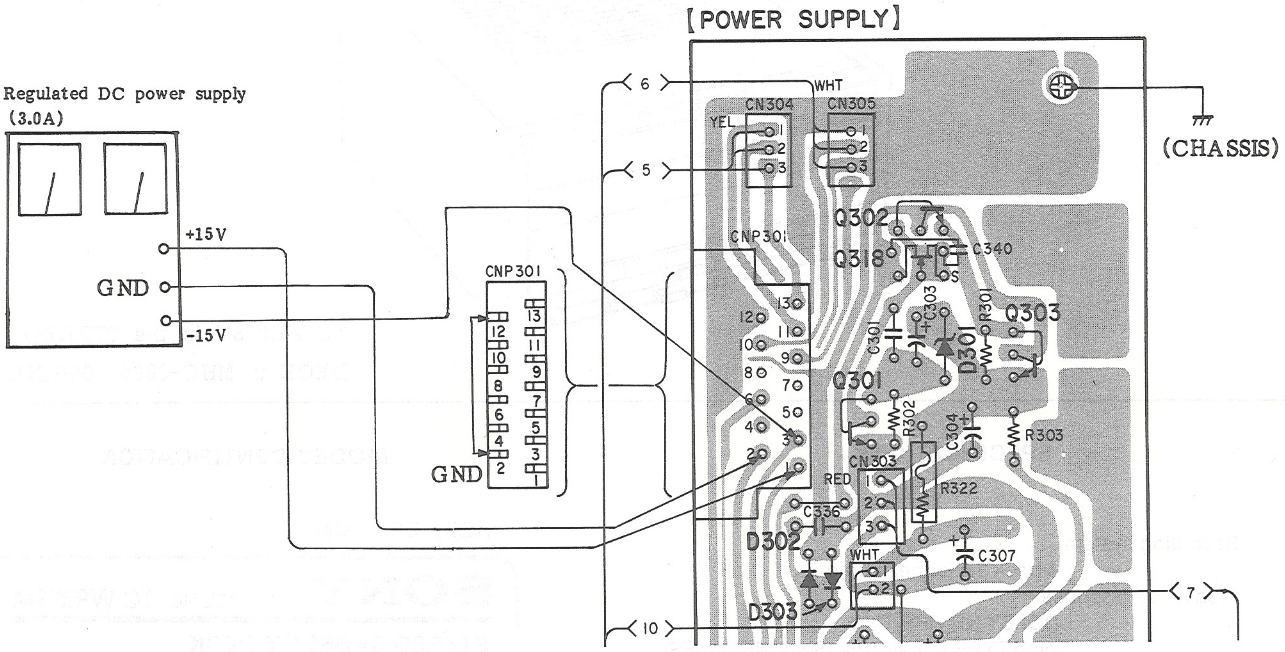

[POWER SUPPLY]
Regulated DC power supply
(3.0A)
+15V
GND
-15V
CNP301
GND
(CHASSIS)
6
5
7
10
WHT
YEL
CN304
CN305
CNP301
Q302
Q318
C340
Q303
C301
C303
D301
R301
Q301
R302
C304
R303
CN303
RED
R322
C336
D302
C307
WHT
D303

TABLE OF CONTENTS

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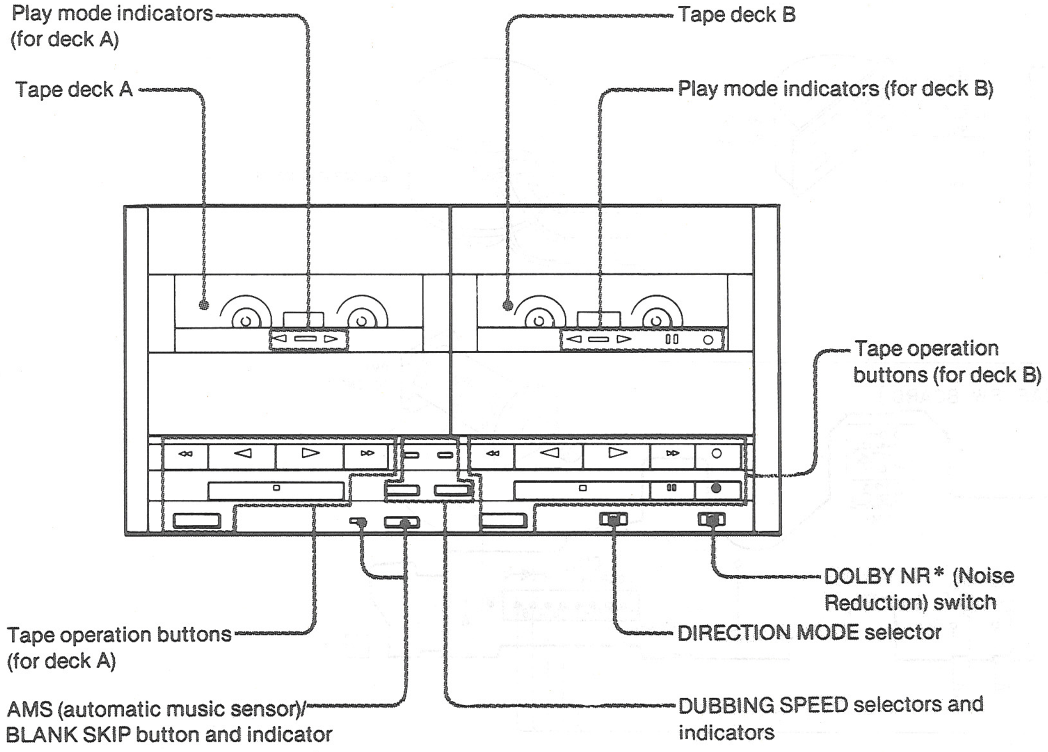
PARTS IDENTIFICATION


Play mode indicators (for deck A)
Tape deck A
Tape deck B
Play mode indicators (for deck B)
Tape operation buttons (for deck B)
DOLBY NR* (Noise Reduction) switch
DIRECTION MODE selector
Tape operation buttons (for deck A)
AMS (automatic music sensor)/ BLANK SKIP button and indicator
DUBBING SPEED selectors and indicators

SECTION 1
ELECTRICAL ADJUSTMENTS

1-1. MECHANICAL ADJUSTMENT

PRECAUTION

1. Clean the following parts with a denatured-alcohol-moistened swab:
   - record/playback/erase head rubber belts
   - capstan
   - pinch roller
   - idlers
2. Demagnetize the head with a head demagnetizer.
3. Do not use a magnetized screwdriver for the adjustments.
4. After the adjustments, apply suitable locking compound to the parts adjusted.
5. The adjustments should be performed with the rated power supply voltage unless otherwise noted.

Torque Measurement

Torque	Torque meter	Meter reading
FWD	CQ-102C	30 - 60 g.cm (0.42 - 0.83oz.inch)
FWD back tension	CQ-102C	1 - 5 g.cm (0.01 - 0.07oz.inch)
FF, REW	CQ-201B	100 - 170 g.cm (1.39 - 2.36 oz.inch)

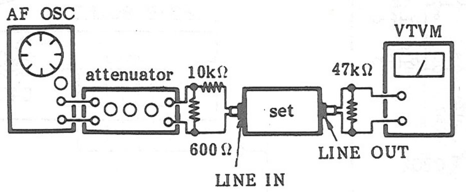
1-2. ELECTRICAL ADJUSTMENT

Note: The adjustment should be performed in the order given in this service manual.
The adjustments should be performed for both L-CH and R-CH.

. Switches and controls should be set as follows unless otherwise specified.
DOLBY NR switch: OFF
ISS switch: 1

. Standard Record:
Deliver the standard input signal level to the input jack and control the attenuator to obtain the standard output signal level.

- Record Mode -


AF OSC
attenuator
10kΩ
600Ω
set
LINE IN
47kΩ
VTVM
LINE OUT

Standard Input Level

	LINE IN
source impedance	10kohms
input level	0.44V (-5dB)

Standard Output Level

	LINE OUT
load impedance	NONE
output level	0.2V (-10dB)

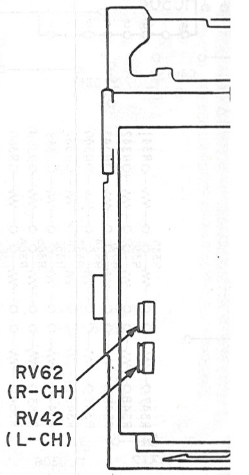
Test Tape

Type	Signal	Used for
WS-48B	3kHz, 0dB	Tape Speed Adjustment
P-4-A100	10kHz, -10dB	Azimuth Adjustment
P-4-L300	315Hz, 0 dB	Level Adjustment

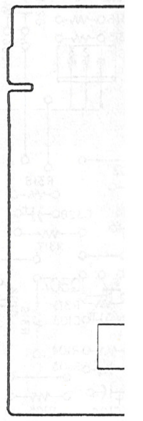
. Locations

LINE OU
LINE OU
LINE
LINE

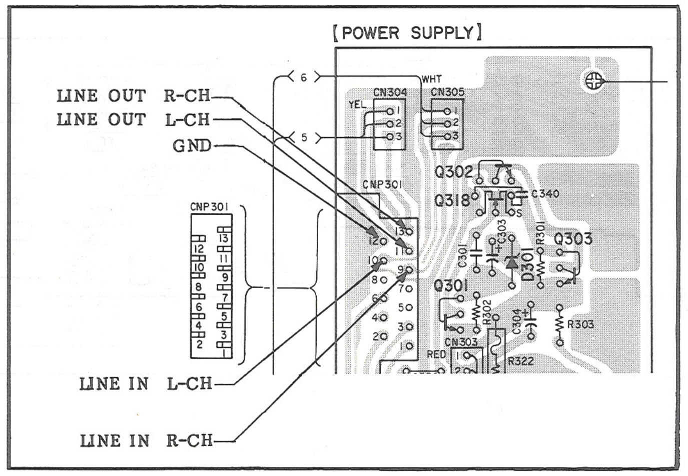
Adjustment


RV62
(R-CH)
RV42
(L-CH)

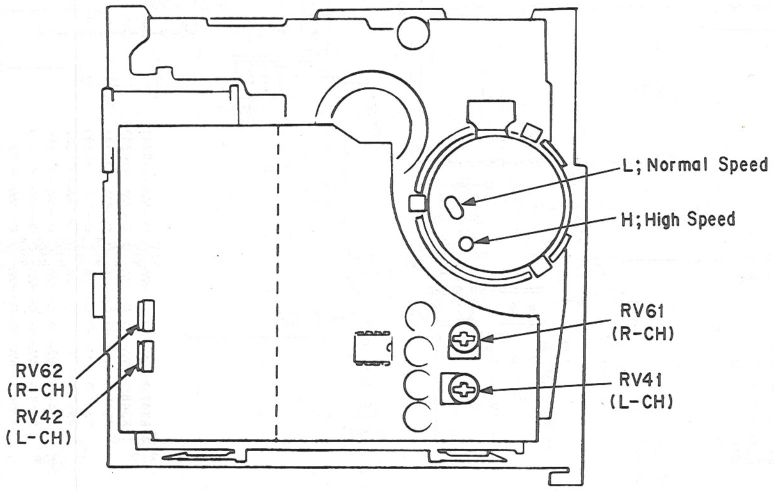
Adjustment Lo



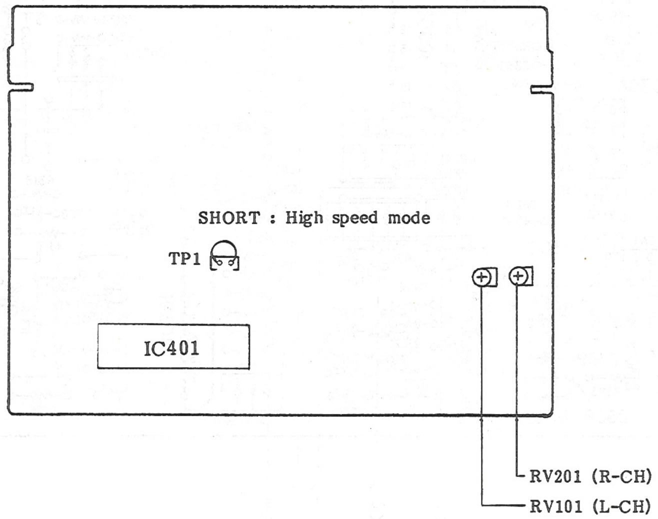
. Locations of LINE IN/OUT.


[POWER SUPPLY]
LINE OUT R-CH
LINE OUT L-CH
GND
LINE IN L-CH
LINE IN R-CH
CNP301
CN304
CN305
YEL
WHT
Q302
Q318
C340
Q303
Q301
D301
C301
C303
C304
R301
R302
R303
R322
CN303
RED
6
5

Adjustment Location : DECK-A/B


L; Normal Speed
H; High Speed
RV61
(R-CH)
RV41
(L-CH)
RV62
(R-CH)
RV42
(L-CH)

Adjustment Location : Audio Board

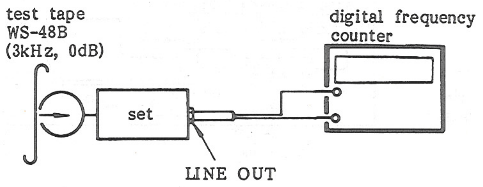

SHORT : High speed mode
TP1
IC401
RV201 (R-CH)
RV101 (L-CH)

Tape Speed Adjustment DECK A DECK B

Procedure:

1. Mode: play back

Perform high speed adjustment before normal speed adjustment.


test tape
WS-48B
(3kHz, 0dB)
digital frequency counter
set
LINE OUT

2. When the DUBBING SPEED's HIGH button is continuously pressed after the FWD button is pressed, high speed is obtained.

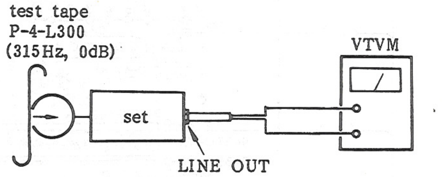
Specifications:

	Digital frequency counter
Normal speed	2,910 to 2,970HZ
High speed	5,910 to 5,970Hz

Playback Level Adjustment

DECK A DECK B

Procedure:


test tape
P-4-L300
(315Hz, 0dB)
VTVM
set
LINE OUT

Adjust $\left\{\begin{array}{l}\text{DECK A: RV41A (L-CH), RV41B (R-CH)}\\ \text{DECK B: RV61A (L-CH), RV61B (R-CH)}\end{array}\right\}$ so that the specifications are satisfied.

Specification:

LINE OUT level: 0.22V to 0.28V (-11dB to -9dB)

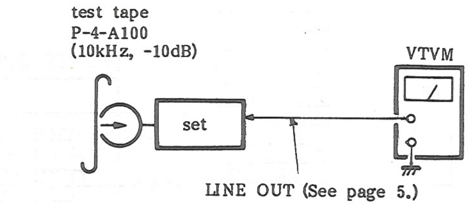
Level difference between channels:

less than 1.0dB check that the check point level does not change in playback mode while changing the mode from playback to stop several times.

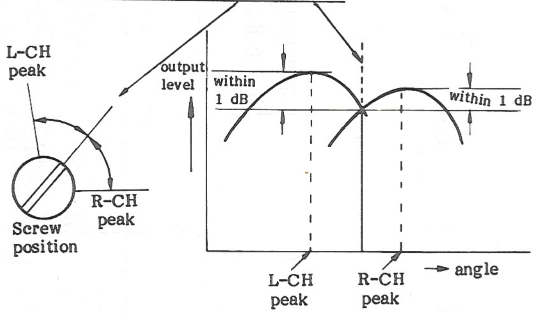
Record/Playback Head Azimuth Adjustment DECK A DECK B

Procedure:

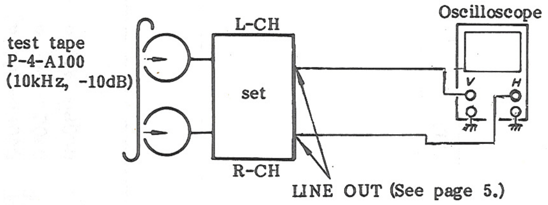
1. Mode: playback

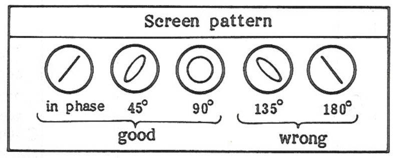

test tape
P-4-A100
(10kHz, -10dB)
VTVM
set
LINE OUT (See page 5.)

2. Turn the adjustment screw for the maximum output levels. If these levels do not match, turn the adjustment screw until both of output levels match together within 1dB.


L-CH peak
Screw position
R-CH peak
output level
within 1 dB
within 1 dB
L-CH peak
R-CH peak
angle

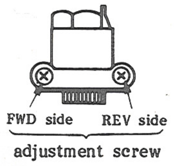
Phase Check
Mode: forward playback


test tape
P-4-A100
(10kHz, -10dB)
L-CH
set
R-CH
Oscilloscope
V
H
LINE OUT (See page 5.)


Screen pattern
in phase
45°
90°
135°
180°
good
wrong

3. Set in the reverse mode and repeat steps 1-2.
4. After the adjustment, lock the screws with locking compound.

Adjustment Location:

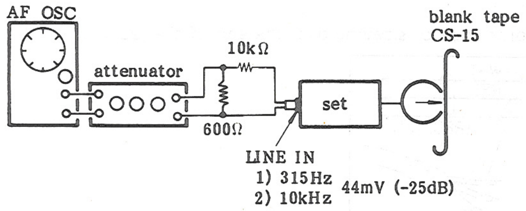

FWD side
REV side
adjustment screw

Record Bias Adjustment DECK B

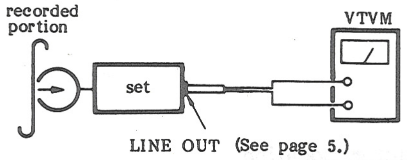
Procedure:

See page 5 for location of LINE IN.

1. Mode: record


AF OSC
attenuator
10kΩ
600Ω
set
blank tape
CS-15
LINE IN
1) 315Hz
2) 10kHz
44mV (-25dB)

2. Mode: playback


recorded portion
VTVM
set
LINE OUT (See page 5.)

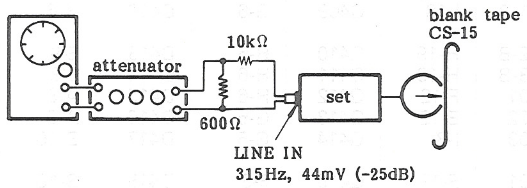
Confirm that the 10kHz playback output is -0.5dB to 0.5dB relative to the 315 Hz output. If necessary, adjust RV42 (L-CH), RV62 (R-CH) and repeat the steps given above.

Record Level Adjustment DECK B

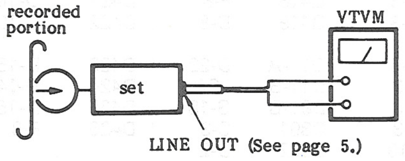
Procedure:

See page 5 for location of LINE IN.

1. Mode: record


attenuator
10kΩ
600Ω
set
blank tape
CS-15
LINE IN
315Hz, 44mV (-25dB)

2. Mode: playback


recorded portion
VTVM
set
LINE OUT (See page 5.)

3. Playback the signal recorded in step 1. Confirm that the signal level is within the specification below. If necessary, adjust RV101 (L-CH), RV201 (R-CH) and repeat steps 1 to 3.

Specification:

LINE OUT point (see page 5) level: 0.73V to 0.82V (-0.5dB to 0.5dB)

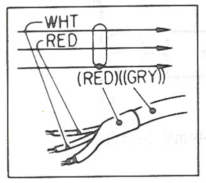
SECTION 2
DIAGRAMS

2-1. PRINTED WIRING BOARDS

. See page 15 for Semiconductor Lead Layouts.

Note:

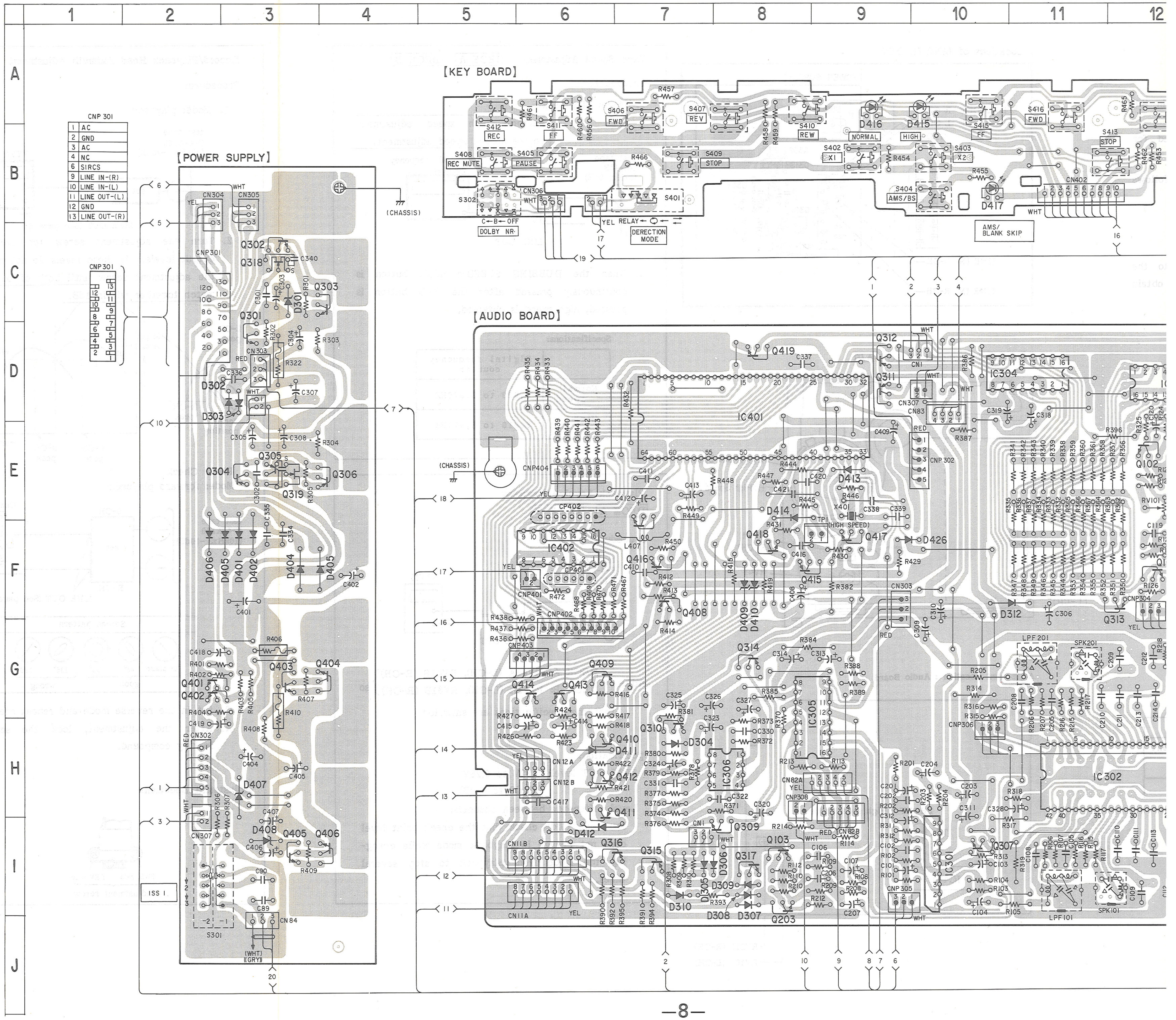
- Color code or sleeving over the end of the jacket.

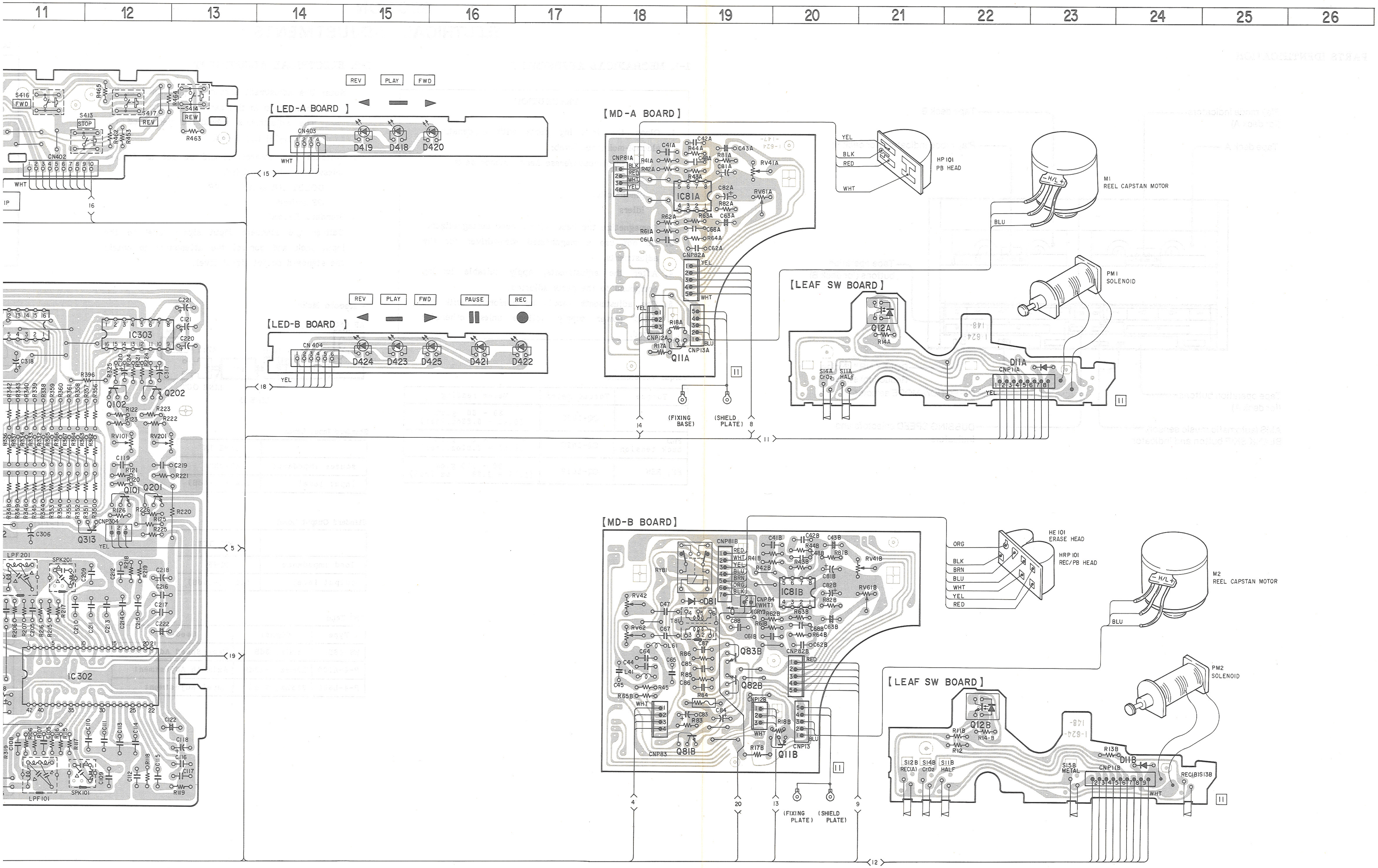

WHT
RED
(RED)(GRY)

- [⁝] indicates side identified with part number.

. Semiconductor Location

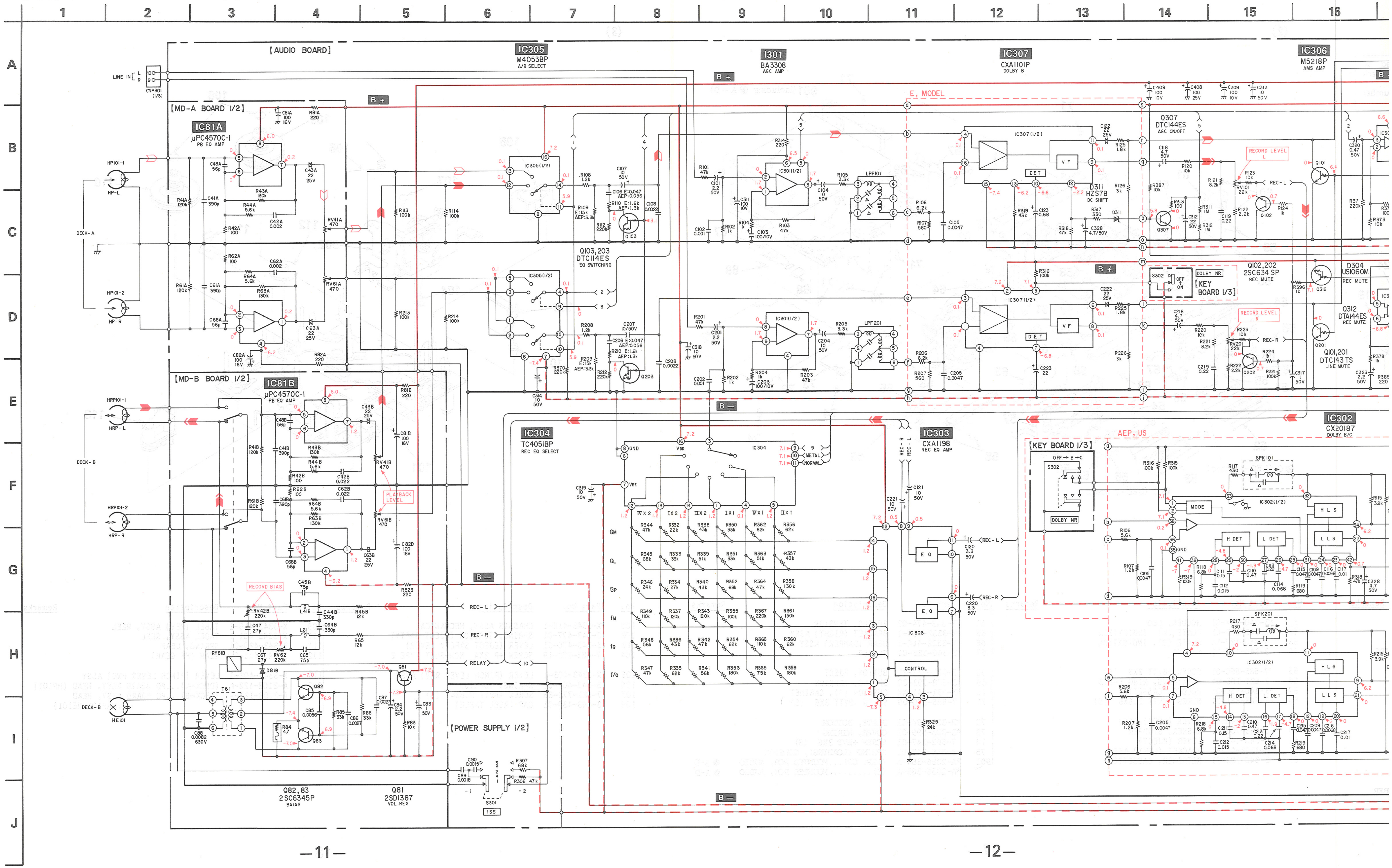
Ref. No.	Location	Ref. No.	Location	Ref. No.	Location
IC81-A	B-18	Q314	G-8	D308	I-7
IC81-B	G-19	Q315	I-7	D310	I-7
IC301	I-9	Q316	I-6	D312	F-10
IC302	H-11	Q317	I-8	D401	F-2
IC303	D-12	Q318	C-3	D402	F-2
IC304	D-10	Q319	E-3	D403	F-3
IC305	H-8	Q401	G-2	D404	F-3
IC306	H-7	Q402	G-2	D405	F-2
IC401	D-8	Q403	G-3	D406	F-2
IC402	F-6	Q404	G-3	D407	H-2
Q11-A	D-18	Q405	I-3	D408	I-3
Q11-B	I-19	Q406	I-3	D409	F-7
Q12-A	D-20	Q407	F-6	D410	F-8
Q12-B	H-22	Q408	F-7	D411	H-6
Q81-B	I-18	Q409	G-6	D412	H-6
Q82-B	H-19	Q410	H-6	D413	E-9
Q83-B	H-19	Q411	H-6	D414	E-8
Q101	F-12	Q412	H-6	D415	A-9
Q102	E-12	Q413	G-6	D416	A-9
Q103	I-8	Q414	G-5	D417	B-10
Q201	F-12	Q415	F-8	D418	B-15
Q202	I-8	Q416	F-7	D419	B-14
Q203	C-2	Q417	F-9	D420	B-15
Q301	C-3	Q418	F-8	D421	D-16
Q302	C-3	Q419	D-8	D422	D-16
Q303	C-3	D11-A	D-22	D423	D-15
Q304	E-2	D11-B	I-24	D424	D-14
Q305	E-3	D81-B	G-18	D425	D-15
Q306	E-3	D301	C-3	D426	F-9
Q307	I-10	D302	D-2		
Q309	H-7	D303	D-2		
Q310	G-7	D304	H-7		
Q311	D-9	D305	I-7		
Q312	D-9	D306	I-7		
Q313	F-11	D307	I-7		


1 2 3 4 5 6 7 8 9 10 11 12
A B C D E F G H I J
[KEY BOARD]
[POWER SUPPLY]
[AUDIO BOARD]
CNP 301
1 AC
2 GND
3 AC
4 NC
6 SIRCS
9 LINE IN-(R)
10 LINE IN-(L)
11 LINE OUT-(L)
12 GND
13 LINE OUT-(R)
CNP301
(CHASSIS)
S412 REC
S411 FF
S406 FWD
S407 REV
S410 REW
D416 NORMAL
D415 HIGH
S415 FF
S416 FWD
S413 STOP
S408 REC MUTE
S405 PAUSE
S409 STOP
S402 X1
S403 X2
S404 AMS/BS
D417
S401
S302 C—B—OFF DOLBY NR
RELAY DERECTION MODE
AMS/ BLANK SKIP
CN402
CN304 CN305 CNP301 CN303
Q302 Q318 Q303 Q301 D301 D302 D303
Q304 Q305 Q306 Q319
D406 D405 D401 D402 D404 D403
Q401 Q402 Q403 Q404
D407 D408 Q405 Q406
CN302 CN307 S301 CN84
ISS 1
IC401 IC402 IC304 IC305 IC306 IC302 IC301
Q419 Q312 Q311 Q418 Q417 Q416 Q415 Q408 Q414 Q413 Q409 Q410 Q411 Q412 Q310 Q314 Q316 Q315 Q317 Q309 Q103 Q203 Q307 Q313 Q102
D413 D414 D426 D409 D410 D411 D412 D304 D305 D306 D307 D308 D309 D310 D312
X401 (HIGH SPEED)
LPF201 SPK201 LPF101 SPK101
CNP404 CP402 CNP401 CNP402 CNP403 CN12A CN12B CN11B CN11A CN82A CN82B CNP308 CNP306 CNP305 CNP302 CNP304 CN307 CN83
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20
(WHT) (GRY)
WHT YEL RED


11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
S416
FWD
S413
STOP
S417
REV
S414
REW
R465
R464
R462
R453
R463
CN402
WHT
IP
16
REV
PLAY
FWD
[LED-A BOARD]
CN403
D419
D418
D420
WHT
15
[MD-A BOARD]
CNP81A
BLK
RED
WHT
YEL
C41A
C42A
R44A
C43A
R81A
C48A
C81A
R41A
R42A
R43A
RV41A
IC81A
C82A
R82A
RV61A
R62A
R63A
C63A
R61A
C61A
C68A
R64A
C62A
CNP82A
YEL
WHT
CNP12A
R18A
R17A
Q11A
CNP13A
BLU
(FIXING BASE)
(SHIELD PLATE)
14
8
11
YEL
BLK
RED
WHT
HP101
PB HEAD
M1
REEL CAPSTAN MOTOR
H/L
BLU
PM1
SOLENOID
[LEAF SW BOARD]
Q12A
R14A
S14A CrO2
S11A HALF
D11A
CNP11A
YEL
REV
PLAY
FWD
PAUSE
REC
[LED-B BOARD]
CN 404
D424
D423
D425
D421
D422
YEL
18
IC303
C221
C121
C220
C318
R396
C317
Q202
Q102
R122
R223
R123
R222
RV101
RV201
C119
C219
R121
R221
R120
Q101
Q201
R126
R226
R125
R220
R225
CNP304
Q313
C306
YEL
5
LPF201
SPK201
C218
C216
C217
C222
IC302
19
C122
C118
C116
C117
R119
LPF101
SPK101
[MD-B BOARD]
CNP81B
RED
WHT
YEL
BLU
BRN
ORG
BLK
RY81
C41B
C42B
C43B
R44B
R81B
C48B
R41B
R42B
R43B
RV41B
C81B
IC81B
C82B
RV61B
R82B
CNP84 (WHT)
(GRY)
R62B
R63B
C63B
R61B
C68B
R64B
C61B
C62B
CNP82B
RED
RV42
C47
D81
T81
C88
RV62
C67
C87
L61
C64
Q83B
C44
C65
R86
C85
L41
R85
C86
Q82B
C45
R45
R84
R65B
WHT
C84
CNP12B
R18B
C83
R83
WHT
Q81B
R17B
Q11B
CNP13
BLU
CNP83
4
20
13
(FIXING PLATE)
(SHIELD PLATE)
9
12
ORG
BLK
BRN
BLU
WHT
YEL
RED
HE101
ERASE HEAD
HRP101
REC/PB HEAD
M2
REEL CAPSTAN MOTOR
BLU
PM2
SOLENOID
[LEAF SW BOARD]
Q12B
R11B
R12
R14-B
R13B
D11B
S12B REC(A)
S14B CrO2
S11B HALF
S15B METAL
CNP11B
REC(B)S13B
WHT

2-2. SCHEMATIC DIAGRAM

• See page 15 for note.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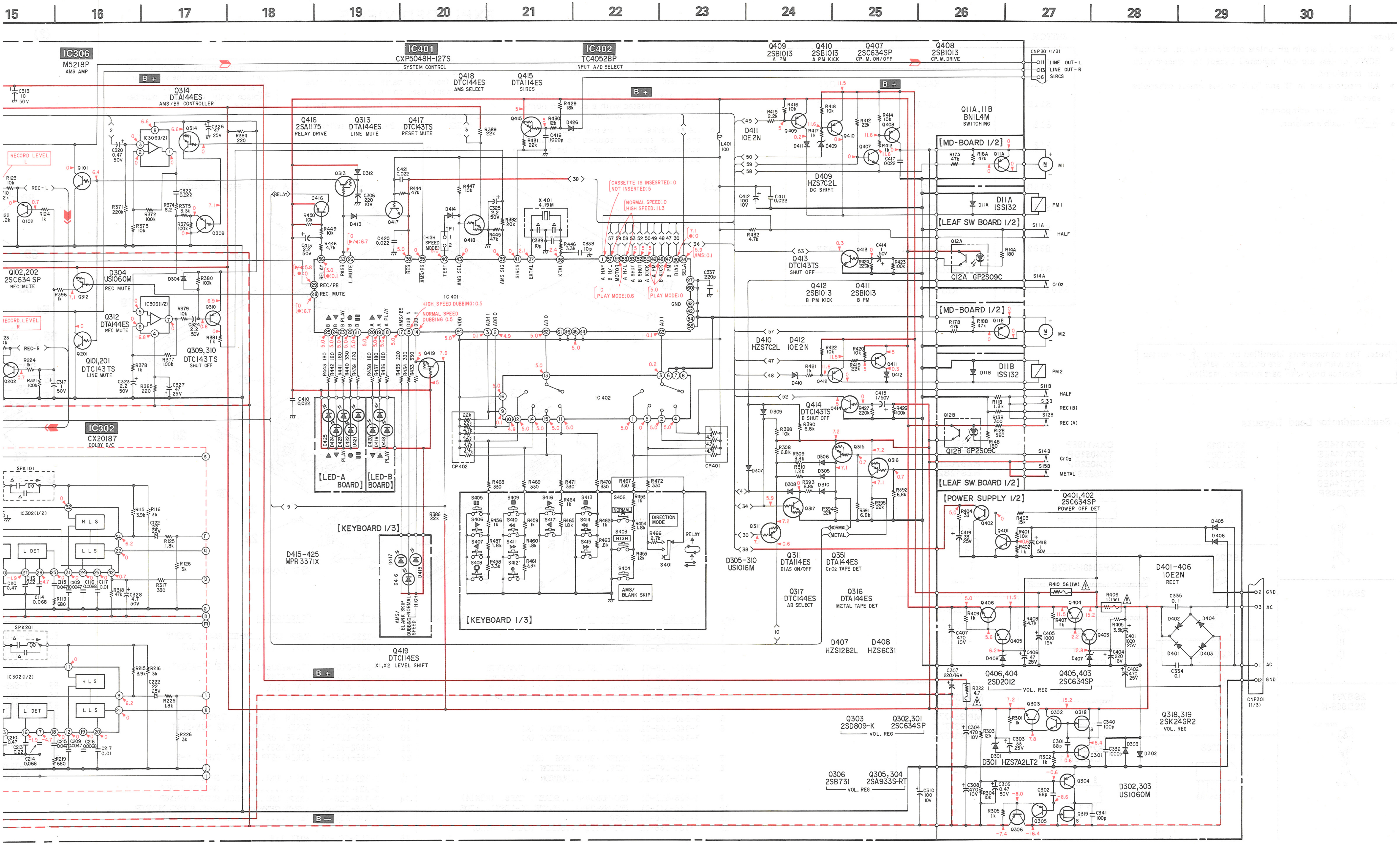
A
B
C
D
E
F
G
H
I
J
[AUDIO BOARD]
[MD-A BOARD 1/2]
[MD-B BOARD 1/2]
[POWER SUPPLY 1/2]
[KEY BOARD 1/3]
LINE IN L R
CNP301 (1/3)
IC81A
μPC4570C-1
PB EQ AMP
IC81B
μPC4570C-1
PB EQ AMP
IC305
M4053BP
A/B SELECT
I301
BA3308
AGC AMP
IC307
CXA1101P
DOLBY B
IC306
M5218P
AMS AMP
IC304
TC4051BP
REC EQ SELECT
IC303
CXA1198
REC EQ AMP
IC302
CX20187
DOLBY B/C
Q103,203
DTC114ES
EQ SWITCHING
Q307
DTC144ES
AGC ON/OFF
Q102,202
2SC634 SP
REC MUTE
Q312
DTA144ES
REC MUTE
Q101,201
DTC143TS
LINE MUTE
D304
US1060M
REC MUTE
D311
HZS7B
DC SHIFT
Q82,83
2SC6345P
BAIAS
Q81
2SD1387
VOL.REG
HP101-1
HP-L
HP101-2
HP-R
DECK-A
HRP101-1
HRP-L
HRP101-2
HRP-R
DECK-B
HE101
RY81B
T81
S301
ISS
S302
DOLBY NR
OFF ON
B+
B−
E, MODEL
AEP, US
RECORD LEVEL
PLAYBACK LEVEL
RECORD BIAS
REC-L
REC-R
RELAY
LPF101
LPF201
DET
VF
EQ
CONTROL
MODE
H DET
L DET
HLS
LLS
SPK101
SPK201
GM
GL
GP
fM
fo
f/Q
METAL
NORMAL
GND
VDD
VEE
IC305(1/2)
IC301(1/2)
IC307(1/2)
IC302(1/2)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29
30
IC306
M5218P
AMS AMP
IC401
CXP5048H-127S
SYSTEM CONTROL
IC402
TC4052BP
INPUT A/D SELECT
Q409
2SB1013
A PM
Q410
2SB1013
A PM KICK
Q407
2SC634SP
CP. M. ON/OFF
Q408
2SB1013
CP. M. DRIVE
CNP301 (1/3)
LINE OUT-L
LINE OUT-R
SIRCS
B +
Q314
DTA144ES
AMS/BS CONTROLLER
Q418
DTC144ES
AMS SELECT
Q415
DTA114ES
SIRCS
Q416
2SA1175
RELAY DRIVE
Q313
DTA144ES
LINE MUTE
Q417
DTC143TS
RESET MUTE
D411
10E2N
Q11A,11B
BN1L4M
SWITCHING
[MD-BOARD 1/2]
D409
HZS7C2L
DC SHIFT
D11A
1SS132
[LEAF SW BOARD 1/2]
RECORD LEVEL L
REC-L
Q101
Q102
CASSETTE IS INSERTED: 0
NOT INSERTED: 5
NORMAL SPEED: 0
HIGH SPEED: 11.3
X401
4.19M
Q413
DTC143TS
SHUT OFF
Q412
2SB1013
B PM KICK
Q411
2SB1013
B PM
Q12A GP2S09C
Q102,202
2SC634SP
REC MUTE
D304
US1060M
REC MUTE
Q312
RECORD LEVEL R
REC-R
Q312
DTA144ES
REC MUTE
Q201
Q101,201
DTC143TS
LINE MUTE
Q309,310
DTC143TS
SHUT OFF
IC401
HIGH SPEED DUBBING: 0.5
NORMAL SPEED DUBBING: 0.5
PLAY MODE: 0.6
PLAY MODE: 0
Q419
D410
HZS7C2L
D412
10E2N
[MD-BOARD 1/2]
D11B
1SS132
IC 402
Q414
DTC143TS
B SHUT OFF
HALF
REC (B)
REC (A)
Q12B GP2S09C
IC302
CX20187
DOLBY B/C
SPK101
IC302(1/2)
H L S
L DET
L L S
[LED-A BOARD]
[LED-B BOARD]
CP402
CP401
[KEYBOARD 1/3]
D415-425
MPR3371X
NORMAL
DIRECTION MODE
HIGH
RELAY
AMS/BLANK SKIP
[KEYBOARD 1/3]
[LEAF SW BOARD 1/2]
[POWER SUPPLY 1/2]
Q401,402
2SC634SP
POWER OFF DET
D305-310
US1016M
Q311
DTA114ES
BIAS ON/OFF
Q351
DTA114ES
CrO2 TAPE DET
Q317
DTC144ES
AB SELECT
Q316
DTA144ES
METAL TAPE DET
D401-406
10E2N
RECT
D407
HZS12B2L
D408
HZS6C31
Q406,404
2SD2012
VOL. REG
Q405,403
2SC634SP
SPK201
IC302(1/2)
Q419
DTC114ES
X1,X2 LEVEL SHIFT
Q303
2SD809-K
Q302,301
2SC634SP
VOL. REG
Q318,319
2SK24GR2
VOL. REG
D301 HZS7A2LT2
Q306
2SB731
Q305,304
2SA933S-RT
VOL. REG
D302,303
US1060M
CNP301 (1/3)
GND
AC
AC
GND
B —

Note:

- All capacitors are in µF unless otherwise noted. pF: µµF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and 1/4 W or less unless otherwise specified.
- △ : internal component.
- ⊞ : fusible resistor.
- ━━ : B+ Line
- ▬▬▬ : B– Line
- ▭ : adjustment for repair.
- Total current is measured with no cassette installed.
- Voltage and waveforms are dc with respect to ground under no-signal conditions.
  no mark : STOP
- ▶ : FWD ◀ : REV ● : REC
- Voltages are taken with a VOM (50 kΩ/V).
  Voltage variations may be noted due to normal production tolerances.
- Signal path.
  - ▷ : PB (DECK A)
  - ▶ : PB (DECK B)
  - ▶▶ : REC (DECK B)
  - ▶ : PB

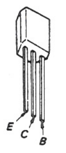
Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

- SWITCH

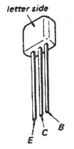
Ref. No.	Switch	Position
S11A	HALF	OFF
S11B	HALF	OFF
S12	REC (A)	OFF
S13	REC (B)	OFF
S14A	CrO_2	OFF
S14B	CrO_2	OFF
S15	METAL	OFF
S301	ISS	1
S302	DOLBY NR	OFF
S401	DIRECTION MODE	⇄
S402 to 417	KEY MATRIX	

- **Semiconductor Lead Layouts**

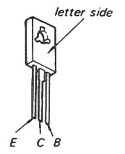
DTA114ES
DTA144ES
DTC114ES
DTC143TS
DTC144ES
2SC634SP



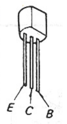
2SA1175



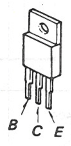
2SB731
2SD809-K



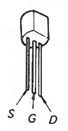
2SB1013
2SC2001
2SD1387



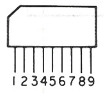
2SD2012



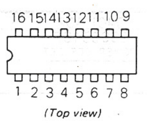
2SK246GR2



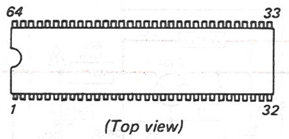
BA3308



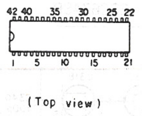
CXA1198P
TC4051BP
TC4052BP
M4053BP



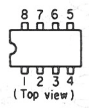
CXP5048H-127S



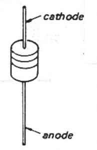
CX20187



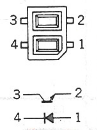
M5218P
µPC4570C-1



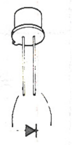
HZS6C3L
HZS7A1L
HZS7C2L
HZS12B2L
US1060M
10E2N
ISS132



GP2S09-B



MAY3877S
MPG3371X
MPG3877S
MPR3371X
MPR3877S



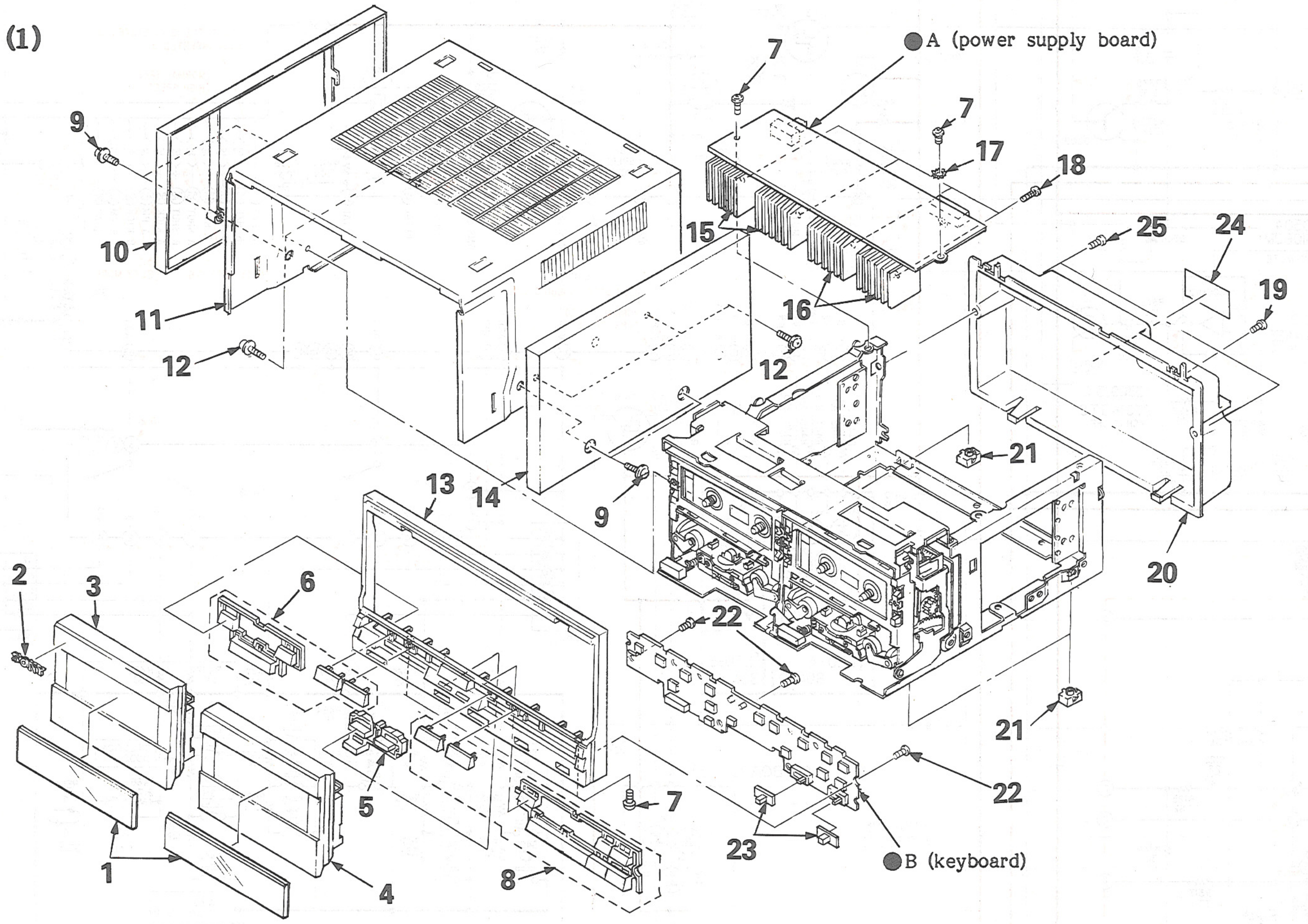
SECTION 3
EXPLODED VIEWS

NOTE:

- The mechanical parts with no reference number in the exploded views are not supplied.
- The construction parts of an assembled part are indicated with a collation number in the remark column.
- Items marked "★" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- Due to standardization, parts with part number suffix -XX and -X may be different from the parts specified in the components used on the set.
- Color Indication of Appearance Parts Example:
  (RED) ...KNOB, BALANCE (WHITE)
  ↑ ↑
  Cabinet's Color Parts' Color

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

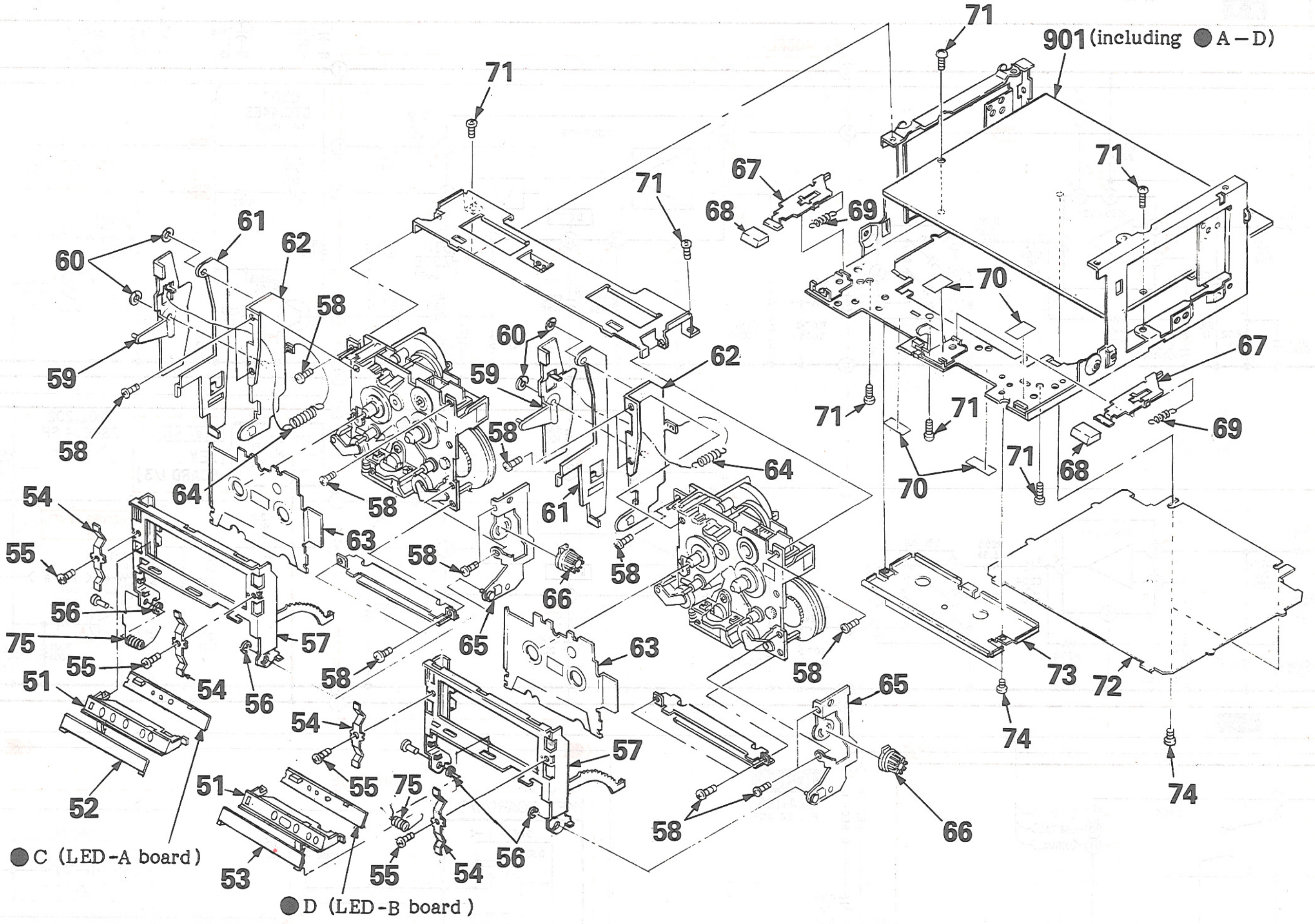
(1)



No.	Part No.	Description	Remarks
1	3-340-129-01	WINDOW	
2	4-920-869-01	EMBLEM, SONY	
3	3-340-148-01	(AEP, US)...LID (A), CASSETTE	
	3-340-148-11	(E).........LID (A), CASSETTE	
4	3-340-149-01	(AEP, US)...LID (B), CASSETTE	
	3-340-149-11	(E).........LID (B), CASSETTE	
5	3-340-145-01	BUTTON (C)	
6	3-340-146-01	(AEP, US)...BUTTON (A)	
	3-340-146-11	(E).........BUTTON (A)	
7	7-682-147-01	SCREW +BVTT 3X6 (S)	
8	3-340-147-01	(AEP, US)...BUTTON (B)	
	3-340-147-11	(E).........BUTTON (B)	
9	4-886-821-51	(TC-WR808M)...SCREW, CASE, (M3X14)	
10	4-346-341-01	(TC-WR808M)...PLATE (C-LEFT), SIDE	
11	4-920-818-12	CASE	
12	3-704-366-01	(TC-WR808)...SCREW (CASE) (M3X8)	

No.	Part No.	Description	Remarks
13	X-3332-467-1	(AEP, US)...PANEL ASSY, FRONT	
	X-3332-469-1	(E)......PANEL ASSY, FRONT	
14	3-346-340-01	(TC-WR808M)...PLATE (C-RIGHT), SIDE	
15	*4-921-402-31	HEAT SINK	
16	*4-921-402-21	HEAT SINK	
17	7-623-422-07	LW 3, TYPE B	
18	7-685-646-79	SCREW +BVTP 3X8 TYPE2 IT-3	
19	7-685-147-11	SCREW +P 3X10 TYPE2 NON-SLIT	
20	*3-340-112-01	PLATE, JACK	
21	X-4902-937-1	FOOT ASSY, RUBBER	
22	7-685-133-11	SCREW +BTP 2.6X6 TYPE2 N-S	
23	3-323-415-41	(AEP, US)...KNOB, SWITCH TIMER	
	3-323-415-51	(E).........KNOB, SWITCH TIMER	
24	*3-346-326-01	(AEP, US)...LABEL MODEL NUMBER	
	*3-346-327-01	(WEST GERMANY)...LABEL MODEL NUMBER	
	*3-346-328-01	(E).........LEBEL MODEL NUMBER	
25	7-685-752-01	+PTT 3X8	

(2)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901 (including ● A−D)
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● C (LED-A board)
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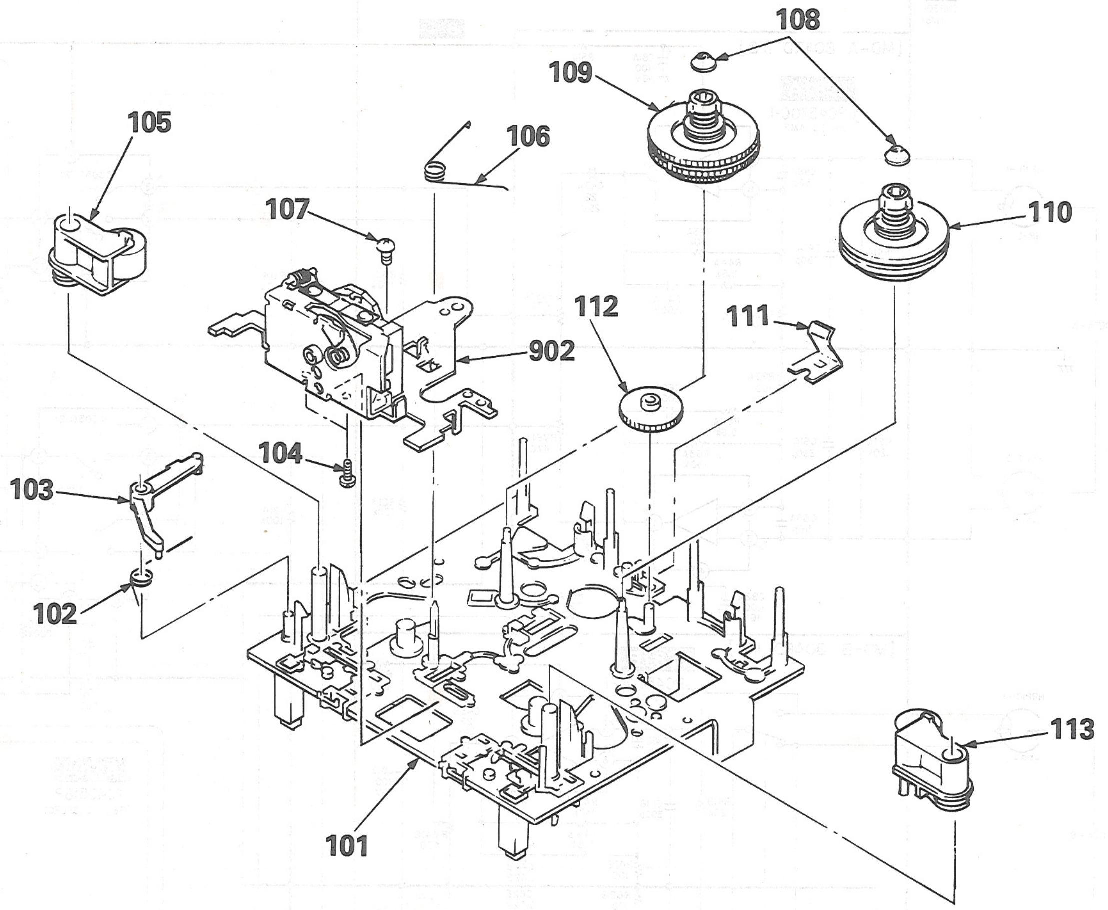
53
● D (LED-B board)

No.	Part No.	Description	Remarks
51	*3-340-144-01	HOLDER, LED	
52	3-340-127-01	PLATE (A), INDICATION	
53	3-340-127-11	PLATE (B), INDICATION	
54	3-340-137-01	SPRING	
55	7-685-850-01	SCREW +BVTT 2X3 (S)	
56	7-624-105-04	RETAINING, RING E-2.3	
57	*3-340-150-01	HOLDER, CASSETTE	
58	7-685-861-01	SCREW +BVTT 2.6X5 (S)	
59	*X-3332-465-1	LEVER (LOCK) ASSY	
60	3-558-708-21	WASHER, STOPPER	
61	*3-340-142-01	LEVER (EJECT)	
62	*X-3332-466-1	BRACKET (LEFT) ASSY	
63	3-340-123-21	RETAINER, CASSETTE	
64	3-343-474-02	SPRING, TENSION	
65	*X-3332-494-1	BRACKET (RIGHT) ASSY	
66	X-3332-464-1	GEAR (DAMPER) ASSY	
67	*3-340-125-01	SLIDER	
68	3-333-621-21	BUTTON, EJECT	
69	3-578-393-00	SPRING, TENSION	
70	3-831-441-XX	CUSHION (B), CABINET	
71	7-685-870-09	SCREW +BVTT 3X5 (S)	
72	*3-325-594-01	PLATE, BOTTOM	
73	*3-325-599-01	COVER, WIRING	
74	7-682-147-01	SCREW +BVT 3X6 (S)	
75	3-346-342-01	SPRING (LOADING), TORSION	
901	*A-2056-384-A	(AEP. US)...MOUNTED PCB, AUDIO	● A-D
	*A-2056-385-A	(E).........MOUNTED PCB, AUDIO	● A-D

(3)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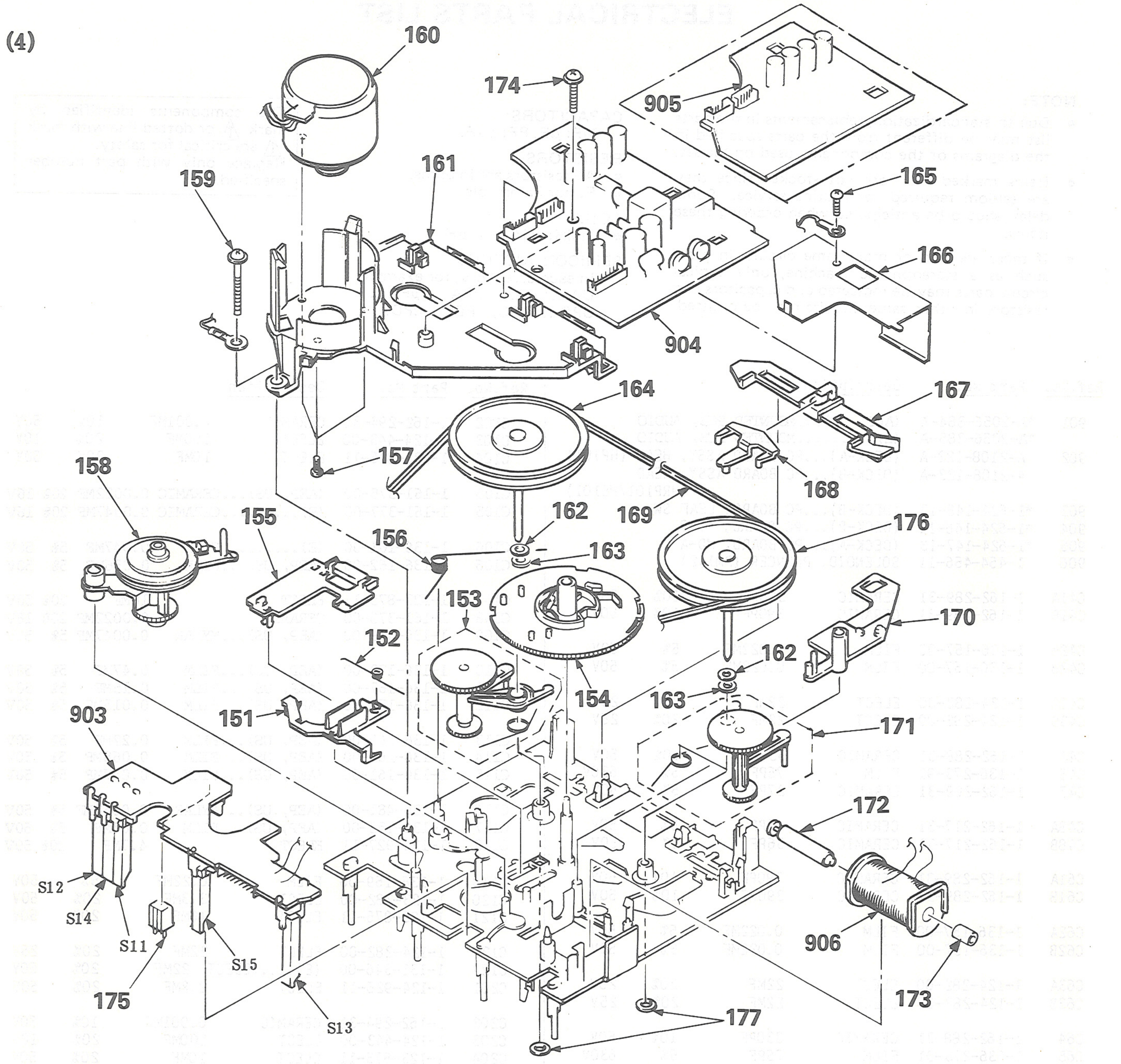
101

No.	Part No.	Description	Remarks
101	*X-3343-418-1	CHASSIS ASSY, MECHANICAL	
102	3-343-477-01	SPRING, TORSION (EJECT SAFTY)	
103	*3-343-476-01	LEVER (EJECT SAFETY LEVER)	
104	7-685-102-19	SCREW +P 2X4 NOW-SLIT TYPE 2	
105	X-3343-403-1	LEVER (PINCH LEVER REV) ASSY	
106	3-343-401-01	SPRING, TORSION	
107	7-621-773-86	SCREW +BVTT 2.6X4 (S)	
108	3-343-439-01	CAP (REEL TABLE)	
109	X-3343-415-1	TABEL (REV) ASSY, REEL	
110	X-3343-401-1	TABEL ASSY, REEL	
111	3-343-420-01	SPRING, LEAF	
112	3-343-411-01	GEAR (FF GEAR)	
113	X-3343-402-1	LEVER (PINCH LEVER FWD) ASSY	
902	A-2108-122-A	(DECK-A)...PC BOARD ASSY, HEAD (HP101)	
	A-2108-123-A	(DECK-B)...PC BOARD ASSY, HEAD (HRP101/HE101)	

(4)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903
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S12
S14
S11
S15
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906
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S13

No.	Part No.	Description	Remarks
151	3-343-453-01	SLIDER (BRAKE PLATE)	
152	3-343-429-01	SPRING, TORSION	
153	X-3343-406-1	LEVER (TU ARM REV) ASSY	
154	3-343-470-01	GEAR (CAM GEAR)	
155	*3-343-461-01	SLIDER	
156	3-343-430-01	SPRING, TORSION	
157	7-627-556-28	SCREW +P 2.6X3.5	
158	X-3343-414-1	LAVER (FR ARM) ASSY	
159	3-343-403-01	SCREW (PTTWH 2X18)	
160	X-3343-408-1	MOTOR ASSY	
161	*X-3343-407-1	BASE (THRUST RETAINER) ASSY	
162	4-605-835-11	WASHER (2.6), POLYSLIDER	
163	3-307-482-00	WASHER, LUMILER	
164	X-3343-411-1	FLYWHEEL COMPLETE ASSY	
165	7-685-102-19	SCREW +P 2X4 NON-SLIT TYPE 2	
166	*3-343-480-01	PLATE, SHIELD	

No.	Part No.	Description	Remarks
167	*3-343-457-01	SLIDER (REVERSE SLIDER)	
168	3-343-462-01	LEVER	
169	3-343-426-01	BELT (CAPSTAN BELT SQUARE)	
170	*3-343-456-01	LEVER (PM LEVER)	
171	X-3343-405-1	LEVER (TU ARM FWD) ASSY	
172	*3-343-425-01	ARBOR(MOVABLE IRON ARBOR),IRON	
173	*3-343-424-01	ARBOR (FIXED IRON ARBOR), IRON	
174	3-343-404-01	SCREW (PTPWH 2X10)	
175	*3-343-419-01	HOLDER (S SENSER A)	
176	X-3343-416-1	FLYWHEEL (REV) COMPLETE ASSY	
177	3-343-473-01	WASHER, NYLON	
903	*1-624-148-13	(DECK-B)...PC BOARD, LEAF SW	
904	*1-624-146-11	(DECK-B)...PC BOARD, MD-B	
905	*1-624-147-13	(DECK-A)...PC BOARD, MD-A	
906	1-454-456-11	SOLENOID, PLUNGER (PM1,2)	

SECTION 4
ELECTRICAL PARTS LIST

NOTE:
- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- Items marked "★" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- If there are two or more same circuits in a set such as a stereophonic machine, only typical circuit parts may be indicated and capacitors and resistors in other same circuits may be omitted.

CAPACITORS:
MF: μF, PF: μμF.

RESISTORS
- All resistors are in ohms.
- F: nonflammable

COILS
- MMH: mH, UH: μH

SEMICONDUCTORS
In each case, U: μ, for example:
UA...: μA..., UPA...: μPA...,
UPC...: μPC, UPD...: μPD...

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Ref.No.	Part No.	Description			
901	*A-2056-384-A	(AEP, US)...MOUNTED PCB, AUDIO			
	*A-2056-385-A	(E).........MOUNTED PCB, AUDIO			
902	A-2108-122-A	(DECK-A)...PC BOARD ASSY, HEAD (HP101)			
	A-2108-123-A	(DECK-B)...PC BOARD ASSY, HEAD (HRP101/HE101)			
903	*1-624-148-13	(DECK-B)...PC BOARD, LEAF SW			
904	*1-624-146-11	(DECK-B)...PC BOARD, MD-B			
905	*1-624-147-13	(DECK-A)...PC BOARD, MD-A			
906	1-454-456-11	SOLENOID, PLUNGER (PM1,2)			
C41A	1-162-289-31	CERAMIC	390PF	10%	50V
C41B	1-162-289-31	CERAMIC	390PF	10%	50V
C42A	1-136-157-00	FILM	0.022MF	5%	50V
C42B	1-136-157-00	FILM	0.022MF	5%	50V
C43A	1-124-282-00	ELECT	22MF	20%	25V
C43B	1-124-282-00	ELECT	22MF	20%	25V
C44	1-162-288-31	CERAMIC	330PF	10%	50V
C45	1-136-273-91	FILM	75PF	5%	630V
C47	1-162-209-31	CERAMIC	27PF	5%	50V
C48A	1-162-217-31	CERAMIC	56PF	5%	50V
C48B	1-162-217-31	CERAMIC	56PF	5%	50V
C61A	1-162-289-31	CERAMIC	390PF	10%	50V
C61B	1-162-289-31	CERAMIC	390PF	10%	50V
C62A	1-136-157-00	FILM	0.022MF	5%	50V
C62B	1-136-157-00	FILM	0.022MF	5%	50V
C63A	1-124-282-00	ELECT	22MF	20%	25V
C63B	1-124-282-00	ELECT	22MF	20%	25V
C64	1-162-288-31	CERAMIC	330PF	10%	50V
C65	1-136-273-91	FILM	75PF	5%	630V
C67	1-162-209-31	CERAMIC	27PF	5%	50V
C68A	1-162-217-31	CERAMIC	56PF	5%	50V
C68B	1-162-217-31	CERAMIC	56PF	5%	50V
C81A	1-124-445-00	ELECT	100MF	20%	16V
C81B	1-126-101-11	ELECT	100MF	20%	16V
C82A	1-124-445-00	ELECT	100MF	20%	16V
C82B	1-126-101-11	ELECT	100MF	20%	16V
C83	1-124-499-11	ELECT	1MF	20%	50V
C84	1-124-925-11	ELECT	2.2MF	20%	50V
C85	1-130-480-00	MYLAR	0.0056MF	5%	50V
C86	1-130-476-00	MYLAR	0.0027MF	5%	50V
C87	1-130-476-00	MYLAR	0.0027MF	5%	50V
C88	1-136-562-11	FILM	0.0082MF	5%	630V
C89	1-136-554-91	FILM	0.0018MF	5%	630V
C90	1-136-553-91	FILM	0.0015MF	5%	630V
C101	1-124-925-11	ELECT	2.2MF	20%	50V
C102	1-162-294-31	CERAMIC	0.001MF	10%	50V
C103	1-124-443-00	ELECT	100MF	20%	10V
C104	1-123-875-11	ELECT	10MF	20%	50V
C105	1-161-375-00	(AEP, US)...CERAMIC	0.0022MF	20%	16V
C105	1-161-377-00	(E).........CERAMIC	0.0047MF	20%	16V
C106	1-136-161-00	(E).........FILM	0.047MF	5%	50V
C106	1-136-162-00	(AEP, US)...FILM	0.056MF	5%	50V
C107	1-123-875-11	ELECT	10MF	20%	50V
C108	1-161-375-00	CERAMIC	0.0022MF	20%	16V
C109	1-130-479-00	(AEP, US)...MYLAR	0.0047MF	5%	50V
C110	1-136-173-00	(AEP, US)...FILM	0.47MF	5%	50V
C111	1-136-167-00	(AEP, US)...FILM	0.15MF	5%	50V
C112	1-136-155-00	(AEP, US)...FILM	0.015MF	5%	50V
C113	1-136-169-00	(AEP, US)...FILM	0.22MF	5%	50V
C114	1-136-163-00	(AEP, US)...FILM	0.068MF	5%	50V
C115	1-136-161-00	(AEP, US)...FILM	0.047MF	5%	50V
C116	1-130-481-00	(AEP, US)...MYLAR	0.0068MF	5%	50V
C117	1-136-153-00	(AEP, US)...FILM	0.01MF	5%	50V
C118	1-124-927-11	ELECT	4.7MF	20%	50V
C119	1-136-169-00	FILM	0.22MF	5%	50V
C120	1-123-382-00	ELECT	3.3MF	20%	50V
C121	1-123-875-11	ELECT	10MF	20%	50V
C122	1-124-282-00	ELECT	22MF	20%	25V
C123	1-131-346-00	(E).....ELECT	22MF	20%	50V
C201	1-124-925-11	ELECT	2.2MF	20%	50V
C202	1-162-294-31	CERAMIC	0.001MF	10%	50V
C203	1-124-443-00	ELECT	100MF	20%	10V
C204	1-123-875-11	ELECT	10MF	20%	50V
C205	1-161-375-00	(AEP, US)...CERAMIC	0.0022MF	20%	16V
C205	1-161-377-00	(E).........CERAMIC	0.0047MF	20%	16V
C206	1-136-161-00	(E).........FILM	0.047MF	20%	50V
C206	1-136-162-00	(AEP, US)...FILM	0.056MF	5%	50V
C207	1-123-875-11	ELECT	10MF	20%	50V
C208	1-161-375-00	CERAMIC	0.0022MF	20%	16V
C209	1-130-479-00	(AEP, US)...MYLAR	0.0047MF	5%	50V
C210	1-136-173-00	(AEP, US)...FILM	0.47MF	5%	50V
C211	1-136-167-00	(AEP, US)...FILM	0.15MF	5%	50V
C212	1-136-155-00	(AEP, US)...FILM	0.015MF	5%	50V
C213	1-136-169-00	(AEP, US)...FILM	0.22MF	5%	50V
C214	1-136-163-00	(AEP, US)...FILM	0.068MF	5%	50V
C215	1-136-161-00	(AEP, US)...FILM	0.047MF	5%	50V
C216	1-130-481-00	(AEP, US)...MYLAR	0.0068MF	5%	50V
C217	1-136-153-00	(AEP, US)...FILM	0.01MF	5%	50V
C218	1-124-927-11	ELECT	4.7MF	20%	50V

Ref.No.	Part No.	Description			
C219	1-136-169-00	FILM	0.22MF	5%	50V
C220	1-123-382-00	ELECT	3.3MF	20%	50V
C221	1-123-875-11	ELECT	10MF	20%	50V
C222	1-124-282-00	ELECT	22MF	20%	25V
C223	1-131-346-00	(E).....ELECT	22MF	20%	50V
C301	1-162-219-31	CERAMIC	68PF	5%	50V
C302	1-162-219-31	CERAMIC	68PF	5%	50V
C303	1-124-482-11	ELECT	33MF	20%	25V
C304	1-124-472-11	ELECT	470MF	20%	10V
C305	1-124-902-00	ELECT	0.47MF	20%	50V
C306	1-124-444-00	ELECT	220MF	20%	10V
C307	1-124-120-11	ELECT	220MF	20%	16V
C308	1-124-472-11	ELECT	470MF	20%	10V
C309	1-124-443-00	ELECT	100MF	20%	10V
C310	1-124-443-00	ELECT	100MF	20%	10V
C311	1-124-443-00	ELECT	100MF	20%	10V
C312	1-124-908-11	ELECT	22MF	20%	50V
C313	1-123-875-11	ELECT	10MF	20%	50V
C314	1-123-875-11	ELECT	10MF	20%	50V
C317	1-124-499-11	ELECT	1MF	20%	50V
C318	1-123-875-11	ELECT	10MF	20%	50V
C319	1-123-875-11	ELECT	10MF	20%	50V
C320	1-124-902-00	ELECT	0.47MF	20%	50V
C322	1-136-157-00	FILM	0.022MF	5%	50V
C323	1-124-925-11	ELECT	2.2MF	20%	50V
C324	1-124-925-11	ELECT	2.2MF	20%	50V
C325	1-124-925-11	ELECT	2.2MF	20%	50V
C326	1-124-477-11	ELECT	47MF	20%	25V
C327	1-124-477-11	ELECT	47MF	20%	25V
C328	1-124-927-11	ELECT	4.7MF	20%	50V
C334	1-136-165-91	FILM	0.1MF		
C335	1-136-165-91	FILM	0.1MF		
C336	1-162-294-11	CERAMIC	1000PF		
C337	1-162-286-11	CERAMIC	220PF		
C338	1-162-199-31	CERAMIC	10PF		
C339	1-162-199-31	CERAMIC	10PF		
C340	1-162-282-31	CERAMIC	100PF		
C341	1-162-282-31	CERAMIC	100PF		
C401	1-123-337-51	ELECT	1000MF	20%	25V
C402	1-124-480-11	ELECT	470MF	20%	25V
C404	1-124-120-11	ELECT	220MF	20%	16V
C405	1-124-360-00	ELECT	1000MF	20%	16V
C406	1-124-477-11	ELECT	47MF	20%	25V
C407	1-124-472-11	ELECT	470MF	20%	10V
C408	1-124-478-11	ELECT	100MF	20%	25V
C409	1-124-443-00	ELECT	100MF	20%	10V
C410	1-161-494-00	CERAMIC	0.022MF		25V
C411	1-161-494-00	CERAMIC	0.022MF		25V
C412	1-124-443-00	ELECT	100MF	20%	10V
C413	1-124-925-11	ELECT	2.2MF	20%	50V
C414	1-124-499-11	ELECT	1MF	20%	50V
C415	1-124-499-11	ELECT	1MF	20%	50V
C416	1-162-294-31	CERAMIC	0.001MF	10%	50V
C417	1-161-494-00	CERAMIC	0.022MF		25V
C418	1-124-499-11	ELECT	1MF	20%	50V
C419	1-124-482-11	ELECT	33MF	20%	25V
C420	1-161-494-00	CERAMIC	0.022MF		25V
C421	1-161-494-00	CERAMIC	0.022MF		25V

Ref.No.	Part No.	Description
CNP11A	*1-506-501-11	PIN, CONNECTOR 8P
CNP11B	*1-506-615-11	PIN, CONNECTOR 9P
CNP12A	*1-564-337-51	PIN, CONNECTOR 3P
CNP12B	*1-564-337-51	PIN, CONNECTOR 3P
CNP13A	*1-564-707-11	PIN, CONNECTOR (SMALL TYPE) 5P
CNP13B	*1-564-707-11	PIN, CONNECTOR (SMALL TYPE) 5P
CNP81A	*1-564-338-51	PIN, CONNECTOR 4P
CNP81B	*1-564-709-11	PIN, CONNECTOR (SMALL TYPE) 7P
CNP82A	*1-564-339-51	PIN, CONNECTOR 5P
CNP82B	*1-564-339-51	PIN, CONNECTOR 5P
CNP83	*1-564-338-51	PIN, CONNECTOR 4P
CNP84	*1-564-704-11	PIN, CONNECTOR (SMALL TYPE) 2P
CNP301	*1-565-291-11	SOCKET, CONNECTOR 13P
CNP306	*1-564-336-61	(E).........PIN, CONNECTOR 2P
CNP306	*1-564-337-61	(AEP, US)...PIN, CONNECTOR 3P
CNP401	*1-564-336-51	PIN, CONNECTOR 2P
CNP402	*1-564-666-11	PIN, CONNECTOR 10P
CNP403	*1-564-338-51	PIN, CONNECTOR 4P
CNP404	*1-564-340-51	PIN, CONNECTOR 6P
CP401	1-233-119-11	COMPOSITION CIRCUIT BLOCK
CP402	1-233-120-11	COMPOSITION CIRCUIT BLOCK
D11A	8-719-940-76	DIODE 1SS132
D11B	8-719-940-76	DIODE 1SS132
D81	8-719-940-76	DIODE 1SS132
D301	8-719-933-43	DIODE HZS7A2LT2
D302	8-719-000-26	DIODE US1060M
D303	8-719-000-26	DIODE US1060M
D304	8-719-000-26	DIODE US1060M
D305	8-719-000-26	DIODE US1060M
D306	8-719-000-26	DIODE US1060M
D307	8-719-000-26	DIODE US1060M
D308	8-719-000-26	DIODE US1060M
D309	8-719-000-26	DIODE US1060M
D310	8-719-000-26	DIODE US1060M
D311	8-719-933-48	(E)...DIODE HZS7B3L
D312	8-719-200-77	DIODE 10E2N
D401	8-719-200-77	DIODE 10E2N
D402	8-719-200-77	DIODE 10E2N
D403	8-719-200-77	DIODE 10E2N
D404	8-719-200-77	DIODE 10E2N
D405	8-719-200-77	DIODE 10E2N
D406	8-719-200-77	DIODE 10E2N
D407	8-719-933-77	DIODE HZS12B2L
D408	8-719-933-41	DIODE HZS6C3L
D409	8-719-933-50	DIODE HZS7C2L
D410	8-719-933-50	DIODE HZS7C2L
D411	8-719-200-77	DIODE 10E2N
D412	8-719-200-77	DIODE 10E2N
D413	8-719-000-26	DIODE US1060M
D414	8-719-000-26	DIODE US1060M
D415	8-719-970-06	DIODE MPR3371X
D416	8-719-970-06	DIODE MPR3371X
D417	8-719-970-07	DIODE MPG3371X

Ref.No.	Part No.	Description	
D418	8-719-942-15	DIODE MPG3877S	
D419	8-719-942-15	DIODE MPG3877S	
D420	8-719-942-15	DIODE MPG3877S	
D421	8-719-942-14	DIODE MAY3877S	
D422	8-719-942-17	DIODE MPR3877S	
D423	8-719-942-15	DIODE MPG3877S	
D424	8-719-942-15	DIODE MPG3877S	
D425	8-719-942-15	DIODE MPG3877S	
D426	8-719-000-26	DIODE US1060M	
IC81A	8-759-111-44	IC UPC4570C-1	
IC81B	8-759-111-44	IC UPC4570C-1	
IC301	8-759-939-73	IC BA3308	
IC302	8-752-018-70	(AEP, US)...IC CX20187	
IC303	8-752-032-60	IC CXA1198P	
IC304	8-759-240-51	IC TC4051BP	
IC305	8-759-601-41	IC M4053BP	
IC306	8-759-601-02	IC M5218P	
IC307	8-752-031-83	(E)...IC CXA1101P	
IC401	8-752-804-34	IC CXP5048H-127S	
IC402	8-759-240-52	IC TC4052BP	
L41	1-410-780-11	INDUCTOR	27MMH
L61	1-410-780-11	INDUCTOR	27MMH
L401	1-408-080-00	INDUCTOR	100UH
LPF101	1-236-087-00	FILTER, LOW PASS	
LPF201	1-236-087-00	FILTER, LOW PASS	
Q11A	8-729-117-54	TRANSISTOR 2SA1175	
Q11B	8-729-117-54	TRANSISTOR 2SA1175	
Q12A	8-719-939-11	TRANSISTOR GP2S09-B	
Q12B	8-719-939-11	TRANSISTOR GP2S09-B	
Q81	8-729-801-93	TRANSISTOR 2SD1387	
Q82	8-729-100-13	TRANSISTOR 2SC2001	
Q83	8-729-100-13	TRANSISTOR 2SC2001	
Q101	8-729-900-74	TRANSISTOR DTC143TS	
Q102	8-729-600-27	TRANSISTOR 2SC634SP	
Q103	8-729-900-80	TRANSISTOR DTC114ES	
Q201	8-729-900-74	TRANSISTOR DTC143TS	
Q202	8-729-600-27	TRANSISTOR 2SC634SP	
Q203	8-729-900-80	TRANSISTOR DTC114ES	
Q301	8-729-600-27	TRANSISTOR 2SC634SP	
Q302	8-729-600-27	TRANSISTOR 2SC634SP	
Q303	8-729-180-92	TRANSISTOR 2SD809K	
Q304	8-729-117-54	TRANSISTOR 2SA1175	
Q305	8-729-117-54	TRANSISTOR 2SA1175	
Q306	8-729-173-13	TRANSISTOR 2SB731	
Q307	8-729-900-89	TRANSISTOR DTC144ES	
Q309	8-729-900-74	TRANSISTOR DTC143TS	
Q310	8-729-117-54	TRANSISTOR 2SA1175	
Q311	8-729-900-61	TRANSISTOR DTA114ES	
Q312	8-729-900-65	TRANSISTOR DTA144ES	
Q313	8-729-900-65	TRANSISTOR DTA144ES	
Q314	8-729-900-65	TRANSISTOR DTA144ES	
Q315	8-729-900-65	TRANSISTOR DTA144ES	
Q316	8-729-900-65	TRANSISTOR DTA144ES	
Q317	8-729-900-89	TRANSISTOR DTC144ES	
Q318	8-729-201-56	TRANSISTOR 2SK246GR2	
Q319	8-729-201-56	TRANSISTOR 2SK246GR2	

Ref.No.	Part No.	Description				
Q401	8-729-600-27	TRANSISTOR 2SC634SP				
Q402	8-729-600-27	TRANSISTOR 2SC634SP				
Q403	8-729-600-27	TRANSISTOR 2SC634SP				
Q404	8-729-209-15	TRANSISTOR 2SD2012				
Q405	8-729-600-27	TRANSISTOR 2SC634SP				
Q406	8-729-209-15	TRANSISTOR 2SD2012				
Q407	8-729-600-27	TRANSISTOR 2SC634SP				
Q408	8-729-801-83	TRANSISTOR 2SB1013				
Q409	8-729-801-83	TRANSISTOR 2SB1013				
Q410	8-729-801-83	TRANSISTOR 2SB1013				
Q411	8-729-801-83	TRANSISTOR 2SB1013				
Q412	8-729-801-83	TRANSISTOR 2SB1013				
Q413	8-729-900-74	TRANSISTOR DTC143TS				
Q414	8-729-900-74	TRANSISTOR DTC143TS				
Q415	8-729-900-61	TRANSISTOR DTA114ES				
Q416	8-729-117-54	TRANSISTOR 2SA1175				
Q417	8-729-900-74	TRANSISTOR DTC143TS				
Q418	8-729-900-89	TRANSISTOR DTC144ES				
Q419	8-729-900-89	TRANSISTOR DTC144ES				
R11	1-215-424-00	CARBON	1.3K	5%	1/4W	
R12	1-249-414-11	CARBON	560	5%	1/4W	
R13	1-215-408-00	CARBON	300	5%	1/4W	
R14A	1-249-408-11	CARBON	180	5%	1/4W	
R14B	1-249-408-11	CARBON	180	5%	1/4W	
R17A	1-249-437-11	CARBON	47K	5%	1/4W	
R17B	1-249-437-11	CARBON	47K	5%	1/4W	
R18A	1-249-437-11	CARBON	47K	5%	1/4W	
R18B	1-249-437-11	CARBON	47K	5%	1/4W	
R41A	1-247-881-00	CARBON	120K	5%	1/4W	
R41B	1-247-881-00	CARBON	120K	5%	1/4W	
R42A	1-249-405-11	CARBON	100	5%	1/4W	
R42B	1-249-405-11	CARBON	100	5%	1/4W	
R43A	1-215-472-00	CARBON	130K	5%	1/4W	
R43B	1-215-472-00	CARBON	130K	5%	1/4W	
R44A	1-249-426-11	CARBON	5.6K	5%	1/4W	
R44B	1-249-426-11	CARBON	5.6K	5%	1/4W	
R45	1-249-430-11	CARBON	12K	5%	1/4W	
R61A	1-247-881-00	CARBON	120K	5%	1/4W	
R61B	1-247-881-00	CARBON	120K	5%	1/4W	
R62A	1-249-405-11	CARBON	100	5%	1/4W	
R62B	1-249-405-11	CARBON	100	5%	1/4W	
R63A	1-215-472-00	CARBON	130K	5%	1/4W	
R63B	1-215-472-00	CARBON	130K	5%	1/4W	
R64A	1-249-426-11	CARBON	5.6K	5%	1/4W	
R64B	1-249-426-11	CARBON	5.6K	5%	1/4W	
R65B	1-249-430-11	CARBON	12K	5%	1/4W	
R81A	1-249-409-11	CARBON	220	5%	1/4W	
R81B	1-249-409-11	CARBON	220	5%	1/4W	
R82A	1-249-409-11	CARBON	220	5%	1/4W	
R82B	1-249-409-11	CARBON	220	5%	1/4W	
R83	1-249-429-11	CARBON	10K	5%	1/4W	
R84	⚠1-212-849-00	FUSIBLE	4.7	5%	1/4W	F
R85	1-249-435-11	CARBON	33K	5%	1/4W	

Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

Ref.No.	Part No.	Description				
R86	1-249-435-11	CARBON	33K	5%	1/4W	
R101	1-249-437-11	CARBON	47K	5%	1/4W	
R102	1-249-417-11	CARBON	1K	5%	1/4W	
R103	1-249-437-11	CARBON	47K	5%	1/4W	
R104	1-249-417-11	CARBON	1K	5%	1/4W	
R105	1-249-423-11	CARBON	3.3K	5%	1/4W	
R106	1-215-440-00	(E).........CARBON	6.2K	5%	1/4W	
R106	1-249-426-11	(AEP, US)...CARBON	5.6K	5%	1/4W	
R107	1-249-414-11	(E).........CARBON	560	5%	1/4W	
R107	1-249-418-11	(AEP, US)...CARBON	1.2K	5%	1/4W	
R108	1-249-418-11	CARBON	1.2K	5%	1/4W	
R109	1-249-423-11	(AEP, US)...CARBON	3.3K	5%	1/4W	
R109	1-247-859-81	(E).........CARBON	15K	5%	1/4W	
R110	1-247-834-11	(AEP, US)...CARBON	1.3K	5%	1/4W	
R110	1-247-836-81	(E).........CARBON	1.6K	5%	1/4W	
R112	1-247-887-00	CARBON	220K	5%	1/4W	
R113	1-249-441-11	CARBON	100K	5%	1/4W	
R114	1-249-441-11	CARBON	100K	5%	1/4W	
R115	1-249-424-11	(AEP, US)...CARBON	3.9K	5%	1/4W	
R116	1-247-842-11	(AEP, US)...CARBON	3K	5%	1/4W	
R117	1-247-822-11	(AEP, US)...CARBON	430	5%	1/4W	
R118	1-249-427-11	(AEP, US)...CARBON	6.8K	5%	1/4W	
R119	1-249-415-11	(AEP, US)...CARBON	680	5%	1/4W	
R120	1-249-429-11	CARBON	10K	5%	1/4W	
R121	1-249-428-11	CARBON	8.2K	5%	1/4W	
R122	1-249-421-11	CARBON	2.2K	5%	1/4W	
R123	1-249-429-11	CARBON	10K	5%	1/4W	
R124	1-249-417-11	CARBON	1K	5%	1/4W	
R125	1-249-420-11	CARBON	1.8K	5%	1/4W	
R126	1-215-432-00	CARBON	3K	5%	1/4W	
R201	1-249-437-11	CARBON	47K	5%	1/4W	
R202	1-249-417-11	CARBON	1K	5%	1/4W	
R203	1-249-437-11	CARBON	47K	5%	1/4W	
R204	1-249-417-11	CARBON	1K	5%	1/4W	
R205	1-249-423-11	CARBON	3.3K	5%	1/4W	
R206	1-215-440-00	(E).........CARBON	6.2K	5%	1/4W	
R206	1-249-426-11	(AEP, US)...CARBON	5.6K	5%	1/4W	
R207	1-249-414-11	(E).........CARBON	560	5%	1/4W	
R207	1-249-418-11	(AEP, US)...CARBON	1.2K	5%	1/4W	
R208	1-249-418-11	CARBON	1.2K	5%	1/4W	
R209	1-249-423-11	(AEP, US)...CARBON	3.3K	5%	1/4W	
R209	1-247-859-81	(E).........CARBON	15K	5%	1/4W	
R210	1-247-834-11	(AEP, US)...CARBON	1.3K	5%	1/4W	
R210	1-247-836-81	(E).........CARBON	1.6K	5%	1/4W	
R212	1-247-887-00	CARBON	220K	5%	1/4W	
R213	1-249-441-11	CARBON	100K	5%	1/4W	
R214	1-249-441-11	CARBON	100K	5%	1/4W	
R215	1-249-424-11	(AEP, US)...CARBON	3.9K	5%	1/4W	
R216	1-247-842-11	(AEP, US)...CARBON	3K	5%	1/4W	
R217	1-247-822-11	(AEP, US)...CARBON	430	5%	1/4W	
R218	1-249-427-11	(AEP, US)...CARBON	6.8K	5%	1/4W	
R219	1-249-415-11	(AEP, US)...CARBON	680	5%	1/4W	
R220	1-249-429-11	CARBON	10K	5%	1/4W	
R221	1-249-428-11	CARBON	8.2K	5%	1/4W	
R222	1-249-421-11	CARBON	2.2K	5%	1/4W	
R223	1-249-429-11	CARBON	10K	5%	1/4W	
R224	1-249-417-11	CARBON	1K	5%	1/4W	
R225	1-249-420-11	CARBON	1.8K	5%	1/4W	
R226	1-247-842-81	CARBON	3K	5%	1/4W	
R301	1-249-417-11	CARBON	1K	5%	1/4W	
R302	1-249-417-11	CARBON	1K	5%	1/4W	
R303	1-249-430-11	CARBON	12K	5%	1/4W	
R304	1-249-429-11	CARBON	10K	5%	1/4W	
R305	1-249-417-11	CARBON	1K	5%	1/4W	
R306	1-249-437-11	CARBON	47K	5%	1/4W	
R307	1-249-439-11	CARBON	68K	5%	1/4W	
R308	1-249-427-11	CARBON	6.8K	5%	1/4W	
R309	1-249-423-11	CARBON	3.3K	5%	1/4W	
R310	1-249-418-11	CARBON	1.2K	5%	1/4W	
R311	1-247-903-00	CARBON	1M	5%	1/4W	
R312	1-247-903-00	CARBON	1M	5%	1/4W	
R313	1-249-405-11	CARBON	100	5%	1/4W	
R314	1-249-409-11	CARBON	220	5%	1/4W	
R315	1-249-441-11	(AEP, US)...CARBON	100K	5%	1/4W	
R316	1-249-441-11	CARBON	100K	5%	1/4W	
R317	1-249-411-11	CARBON	330	5%	1/4W	
R318	1-249-437-11	CARBON	47K	5%	1/4W	
R319	1-215-460-00	(E).........METAL	43K	5%	1/4W	
R319	1-215-469-00	(AEP, US)...METAL	100K	1%	1/6W	
R321	1-249-441-11	CARBON	100K	5%	1/4W	
R322	⚠1-212-849-00	FUSIBLE	4.7	5%	1/4W	F
R325	1-247-864-11	CARBON	24K	5%	1/4W	
R332	1-249-433-11	CARBON	22K	5%	1/4W	
R333	1-249-436-11	CARBON	39K	5%	1/4W	
R334	1-249-424-11	CARBON	27K	5%	1/4W	
R335	1-247-874-11	CARBON	62K	5%	1/4W	
R336	1-247-870-11	CARBON	43K	5%	1/4W	
R337	1-247-881-00	CARBON	120K	5%	1/4W	
R338	1-247-870-11	CARBON	43K	5%	1/4W	
R339	1-247-872-11	CARBON	51K	5%	1/4W	
R340	1-247-870-11	CARBON	43K	5%	1/4W	
R341	1-249-438-11	CARBON	56K	5%	1/4W	
R342	1-249-437-11	CARBON	47K	5%	1/4W	
R343	1-247-881-00	CARBON	120K	5%	1/4W	
R344	1-249-437-11	CARBON	47K	5%	1/4W	
R345	1-249-439-11	CARBON	68K	5%	1/4W	
R346	1-247-864-11	CARBON	24K	5%	1/4W	
R347	1-249-437-11	CARBON	47K	5%	1/4W	
R348	1-249-438-11	CARBON	56K	5%	1/4W	
R349	1-247-880-11	CARBON	110K	5%	1/4W	
R350	1-249-435-11	CARBON	33K	5%	1/4W	
R351	1-249-435-11	CARBON	33K	5%	1/4W	
R352	1-249-439-11	CARBON	110K	5%	1/4W	
R353	1-247-885-11	CARBON	180K	5%	1/4W	
R354	1-247-874-11	CARBON	62K	5%	1/4W	
R355	1-249-441-11	CARBON	100K	5%	1/4W	
R356	1-247-874-11	CARBON	62K	5%	1/4W	
R357	1-247-870-11	CARBON	43K	5%	1/4W	
R358	1-247-882-11	CARBON	130K	5%	1/4W	

Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Ref.No.	Part No.	Description				
R359	1-247-885-00	CARBON	180K	5%	1/4W	
R360	1-247-874-11	CARBON	62K	5%	1/4W	
R361	1-247-883-00	CARBON	150K	5%	1/4W	
R362	1-247-874-11	CARBON	62K	5%	1/4W	
R363	1-247-872-11	CARBON	51K	5%	1/4W	
R364	1-249-437-11	CARBON	47K	5%	1/4W	
R365	1-247-876-11	CARBON	75K	5%	1/4W	
R366	1-247-880-11	CARBON	110K	5%	1/4W	
R367	1-247-887-00	CARBON	220K	5%	1/4W	
R370	1-247-887-00	CARBON	220K	5%	1/4W	
R371	1-247-887-00	CARBON	220K	5%	1/4W	
R372	1-249-441-11	CARBON	100K	5%	1/4W	
R373	1-249-429-11	CARBON	10K	5%	1/4W	
R374	1-249-428-11	CARBON	8.2K	5%	1/4W	
R375	1-249-423-11	CARBON	3.3K	5%	1/4W	
R376	1-249-441-11	CARBON	100K	5%	1/4W	
R377	1-249-441-11	CARBON	100K	5%	1/4W	
R378	1-249-417-11	CARBON	1K	5%	1/4W	
R379	1-249-429-11	CARBON	10K	5%	1/4W	
R380	1-249-441-11	CARBON	100K	5%	1/4W	
R381	1-249-417-11	CARBON	1K	5%	1/4W	
R382	1-247-862-11	CARBON	20K	5%	1/4W	
R384	1-249-409-11	CARBON	220	5%	1/4W	
R385	1-249-409-11	CARBON	220	5%	1/4W	
R386	1-249-433-11	CARBON	22K	5%	1/4W	
R387	1-249-429-11	CARBON	10K	5%	1/4W	
R388	1-249-429-11	CARBON	10K	5%	1/4W	
R389	1-249-433-11	CARBON	22K	5%	1/4W	
R390	1-249-427-11	CARBON	6.8K	5%	1/4W	
R391	1-249-427-11	CARBON	6.8K	5%	1/4W	
R392	1-249-427-11	CARBON	6.8K	5%	1/4W	
R393	1-249-427-11	CARBON	6.8K	5%	1/4W	
R394	1-249-433-11	CARBON	22K	5%	1/4W	
R395	1-249-433-11	CARBON	22K	5%	1/4W	
R396	1-249-417-11	CARBON	1K	5%	1/4W	
R401	1-249-429-11	CARBON	10K	5%	1/4W	
R402	1-249-417-11	CARBON	1K	5%	1/4W	
R403	1-249-431-11	CARBON	15K	5%	1/4W	
R404	1-249-399-11	CARBON	33	5%	1/4W	
R405	1-249-423-11	CARBON	3.3K	5%	1/4W	
R406	⚠1-213-036-51	FUSIBLE	1		1W	F
R407	1-249-417-11	CARBON	1K	5%	1/4W	
R408	1-249-425-11	CARBON	4.7K	5%	1/4W	
R409	1-249-417-11	CARBON	1K	5%	1/4W	
R410	⚠1-217-490-00	FUSIBLE	56	5%	1W	F
R412	1-249-433-11	CARBON	22K	5%	1/4W	
R413	1-249-417-11	CARBON	1K	5%	1/4W	
R414	1-249-429-11	CARBON	10K	5%	1/4W	
R415	1-249-421-11	CARBON	2.2K	5%	1/4W	
R416	1-249-429-11	CARBON	10K	5%	1/4W	
R417	1-249-417-11	CARBON	1K	5%	1/4W	
R418	1-249-429-11	CARBON	10K	5%	1/4W	
R419	1-249-421-11	CARBON	2.2K	5%	1/4W	
R420	1-249-429-11	CARBON	10K	5%	1/4W	
R421	1-249-417-11	CARBON	1K	5%	1/4W	
R422	1-249-429-11	CARBON	10K	5%	1/4W	
R423	1-249-441-11	CARBON	100K	5%	1/4W	
R424	1-247-887-00	CARBON	220K	5%	1/4W	
R426	1-249-441-11	CARBON	100K	5%	1/4W	
R427	1-247-887-00	CARBON	220K	5%	1/4W	
R429	1-249-432-11	CARBON	18K	5%	1/4W	
R430	1-249-430-11	CARBON	12K	5%	1/4W	
R431	1-249-433-11	CARBON	22K	5%	1/4W	
R432	1-249-425-11	CARBON	4.7K	5%	1/4W	
R433	1-249-411-11	CARBON	330	5%	1/4W	
R434	1-249-411-11	CARBON	330	5%	1/4W	
R435	1-249-409-11	CARBON	220	5%	1/4W	
R436	1-249-408-11	CARBON	180	5%	1/4W	
R437	1-249-408-11	CARBON	180	5%	1/4W	
R438	1-249-408-11	CARBON	180	5%	1/4W	
R439	1-249-409-11	CARBON	220	5%	1/4W	
R440	1-249-411-11	CARBON	330	5%	1/4W	
R441	1-249-408-11	CARBON	180	5%	1/4W	
R442	1-249-408-11	CARBON	180	5%	1/4W	
R443	1-249-408-11	CARBON	180	5%	1/4W	
R444	1-249-437-11	CARBON	47K	5%	1/4W	
R445	1-249-437-11	CARBON	47K	5%	1/4W	
R446	1-249-423-11	CARBON	3.3K	5%	1/4W	
R447	1-249-429-11	CARBON	10K	5%	1/4W	
R448	1-249-425-11	CARBON	4.7K	5%	1/4W	
R449	1-249-429-11	CARBON	10K	5%	1/4W	
R450	1-249-429-11	CARBON	10K	5%	1/4W	
R453	1-249-417-11	CARBON	1K	5%	1/4W	
R454	1-249-420-11	CARBON	1.8K	5%	1/4W	
R455	1-249-430-11	CARBON	12K	5%	1/4W	
R456	1-249-417-11	CARBON	1K	5%	1/4W	
R457	1-249-420-11	CARBON	1.8K	5%	1/4W	
R458	1-249-423-11	CARBON	3.3K	5%	1/4W	
R459	1-249-417-11	CARBON	1K	5%	1/4W	
R460	1-249-420-11	CARBON	1.8K	5%	1/4W	
R461	1-249-423-11	CARBON	3.3K	5%	1/4W	

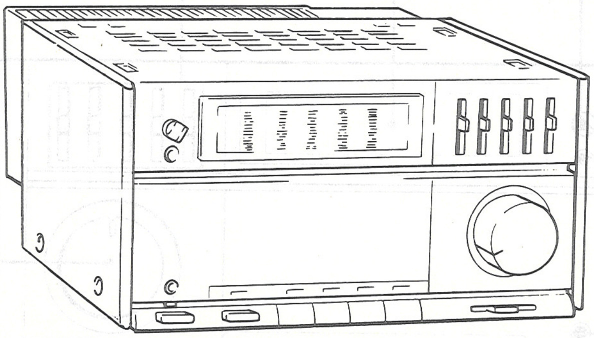
Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

Ref.No.	Part No.	Description			
R462	1-249-417-11	CARBON	1K	5%	1/4W
R463	1-249-420-11	CARBON	1.8K	5%	1/4W
R464	1-249-417-11	CARBON	1K	5%	1/4W
R465	1-249-420-11	CARBON	1.8K	5%	1/4W
R466	1-249-422-11	CARBON	2.7K	5%	1/4W
R467	1-249-411-11	CARBON	330	5%	1/4W
R468	1-249-411-11	CARBON	330	5%	1/4W
R469	1-249-411-11	CARBON	330	5%	1/4W
R470	1-249-411-11	CARBON	330	5%	1/4W
R471	1-249-411-11	CARBON	330	5%	1/4W
R472	1-249-411-11	CARBON	330	5%	1/4W
RV41A	1-228-989-00	RES, ADJ, CARBON 470			
RV41B	1-228-989-00	RES, ADJ, CARBON 470			
RV42	1-230-725-11	RES, ADJ, CARBON 220K			
RV61A	1-228-989-00	RES, ADJ, CARBON 470			
RV61B	1-228-989-00	RES, ADJ, CARBON 470			
RV62	1-230-725-11	RES, ADJ, CARBON 220K			
RV101	1-228-995-00	RES, ADJ, CARBON 22K			
RV201	1-228-995-00	RES, ADJ, CARBON 22K			
RY81	1-515-614-11	RELAY			
S11A	1-571-281-21	SWITCH, LEAF			
S11B	1-571-281-21	SWITCH, LEAF			
S12	1-571-281-21	SWITCH, LEAF			
S13	1-571-281-21	SWITCH, LEAF			
S14A	1-571-281-21	SWITCH, LEAF			
S14B	1-571-281-21	SWITCH, LEAF			
S15	1-571-281-21	SWITCH, LEAF			
S301	1-554-277-00	SWITCH, SLIDE			
S302	1-570-835-11	(AEP, US)...SWITCH, SLIDE			
S302	1-570-845-11	(E).........SEITCH, SLIDE			
S401	1-570-835-11	SWITCH, SLIDE			
S402	1-553-856-00	SWITCH, KEY BOARD			
S403	1-553-856-00	SWITCH, KEY BOARD			
S404	1-553-856-00	SWITCH, KEY BOARD			
S405	1-553-856-00	SWITCH, KEY BOARD			
S406	1-553-856-00	SWITCH, KEY BOARD			
S407	1-553-856-00	SWITCH, KEY BOARD			
S408	1-553-856-00	SWITCH, KEY BOARD			
S409	1-553-856-00	SWITCH, KEY BOARD			
S410	1-553-856-00	SWITCH, KEY BOARD			
S411	1-553-856-00	SWITCH, KEY BOARD			
S412	1-553-856-00	SWITCH, KEY BOARD			
S413	1-553-856-00	SWITCH, KEY BOARD			
S414	1-553-856-00	SWITCH, KEY BOARD			
S415	1-553-856-00	SWITCH, KEY BOARD			
S416	1-553-856-00	SWITCH, KEY BOARD			
S417	1-553-856-00	SWITCH, KEY BOARD			
SPK101	1-235-186-00	(AEP, US)...ENCAPSULATED COMPONENT			
SPK201	1-235-186-00	(AEP, US)...ENCAPSULATED COMPONENT			
T81B	1-433-337-11	TRANSFORMER, BIAS OSCILLATION			
TP1	*1-564-505-11	PLUG, CONNECTOR 2P			
X401	1-567-772-11	VIBRATOR, CERAMIC			

TA-808M

SERVICE MANUAL

US Model
West Germany Model



- TA-808M is the INTEGRATED STEREO AMPLIFIER in MHC-3000/3000CD.

SPECIFICATIONS

AUDIO POWER SPECIFICATION (US model)

POWER OUTPUT AND TOTAL HARMONIC DISTORTION:

With 6 ohm loads both channels driven, from 50 – 20,000 Hz; rated 30 watts per channel minimum RMS power, with no more than 1% total harmonic distortion from 250 miliwatts to rated output.

Inputs

Input jacks	Jack type	Sensitivity	Impedance
PHONO	Phono	250 mV	50 kohms
CD	Phono	450 mV	50 kohms
MIC	Stereo mini	1 mV	600 ohms

Outputs

HEADPHONES (stereo phone jack)	Accepts headphones of 8 ohms or more
SPEAKER	Accepts speakers of 6 to 16 ohms

General

Power requirements	US model: 120V AC, 60Hz West Germany model: 220V AC, 50Hz
Power consumption	US model: 95W West Germany model: 110W
Dimensions	Approx. 245×120×285mm (w/h/d) ($9^3/_4 \times 4^3/_4 \times 11^1/_4$ inches) incl. projecting parts and controls
Weight	Approx. 4.5kg (10lb) net

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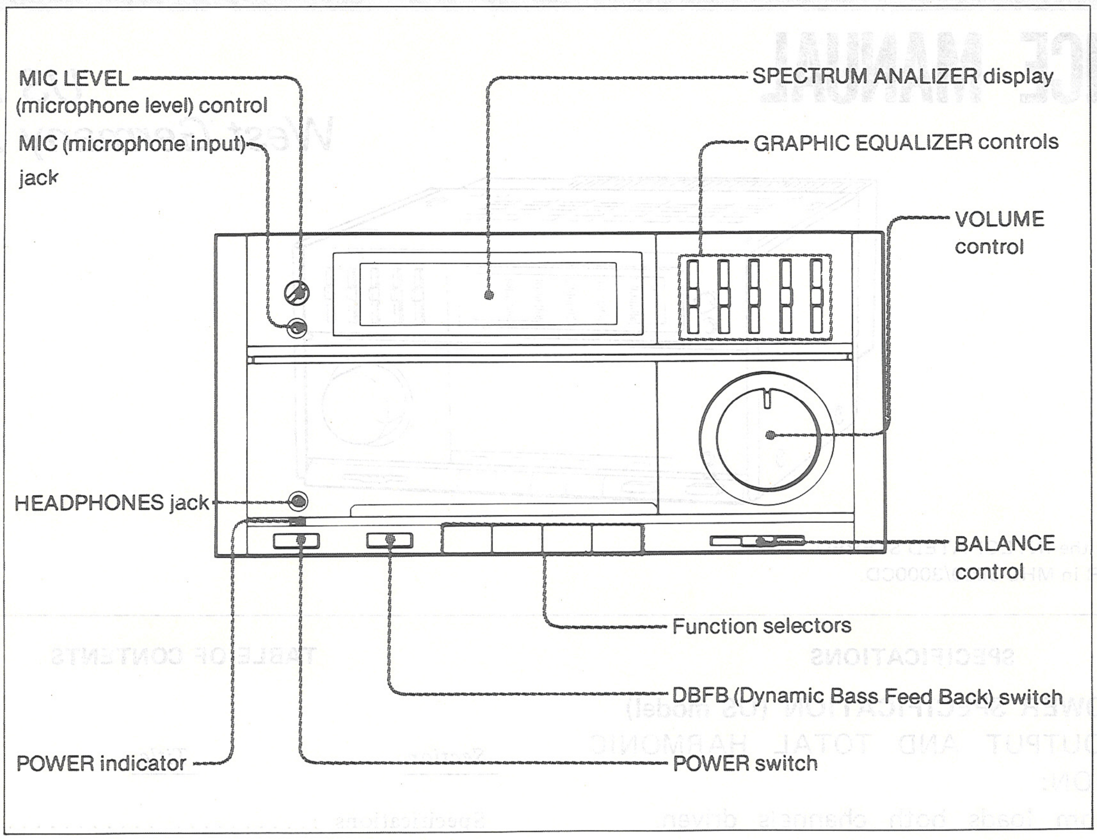
SECTION 3. ELECTRICAL PARTS LIST 17

MICROFILM

INTEGRATED STEREO AMPLIFIER

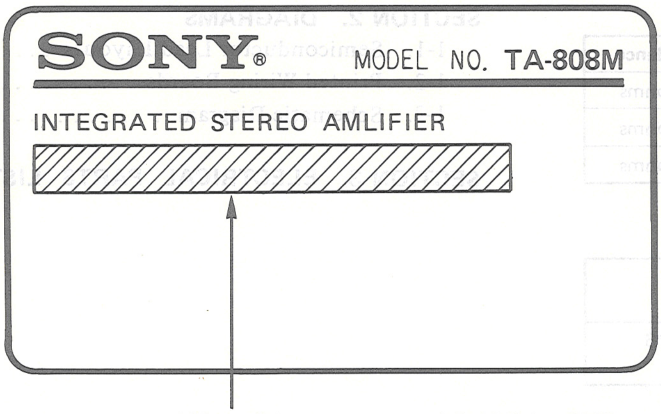
SONY®

LOCATION AND FUNCTION OF CONTROLS


MIC LEVEL (microphone level) control
MIC (microphone input) jack
HEADPHONES jack
POWER indicator
SPECTRUM ANALIZER display
GRAPHIC EQUALIZER controls
VOLUME control
BALANCE control
Function selectors
DBFB (Dynamic Bass Feed Back) switch
POWER switch

—MODEL IDENTIFICATION—

(Specification Label)


SONY®
MODEL NO. TA-808M
INTEGRATED STEREO AMLIFIER

US model:	AC 120V	60Hz	95W
West Germany model:	AC 220V	50Hz	110W

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK ⚠ OR DOTTED LINE WITH MARK ⚠ ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

SAFETY CHECK-OUT

After correcting the original service problem, perform the following safety check before releasing the set to the customer:
Check the antenna terminals, metal trim, "metallized" knobs, screws, and all other exposed metal parts for AC leakage. Check leakage as described below.

LEAKAGE TEST

The AC leakage from any exposed metal part to earth ground and from all exposed metal parts to any exposed metal part having a return to chassis, must not exceed 0.5 mA (500 microampers). Leakage current can be measured by any one of three methods.

1. A commercial leakage tester, such as the Simpson 229 or RCA WT-540A. Follow the manufacturers' instructions to use these instruments.
2. A battery-operated AC milliammeter. The Data Precision 245 digital multimeter is suitable for this job.
3. Measuring the voltage drop across a resistor by means of a VOM or battery-operated AC voltmeter. The "limit" indication is 0.75 V, so analog meters must have an accurate low-voltage scale. The Simpson 250 and Sanwa SH-63Trd are examples of a passive VOM that is suitable. Nearly all battery operated digital multimeters that have a 2 V AC range are suitable. (See Fig. A)

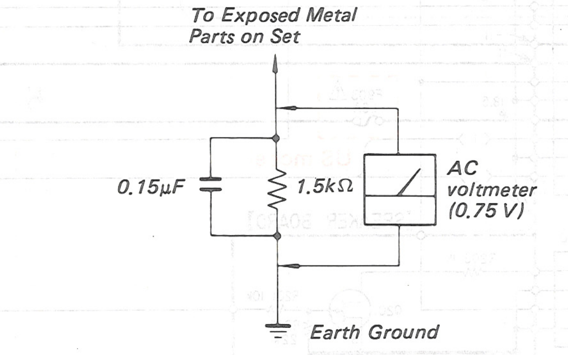


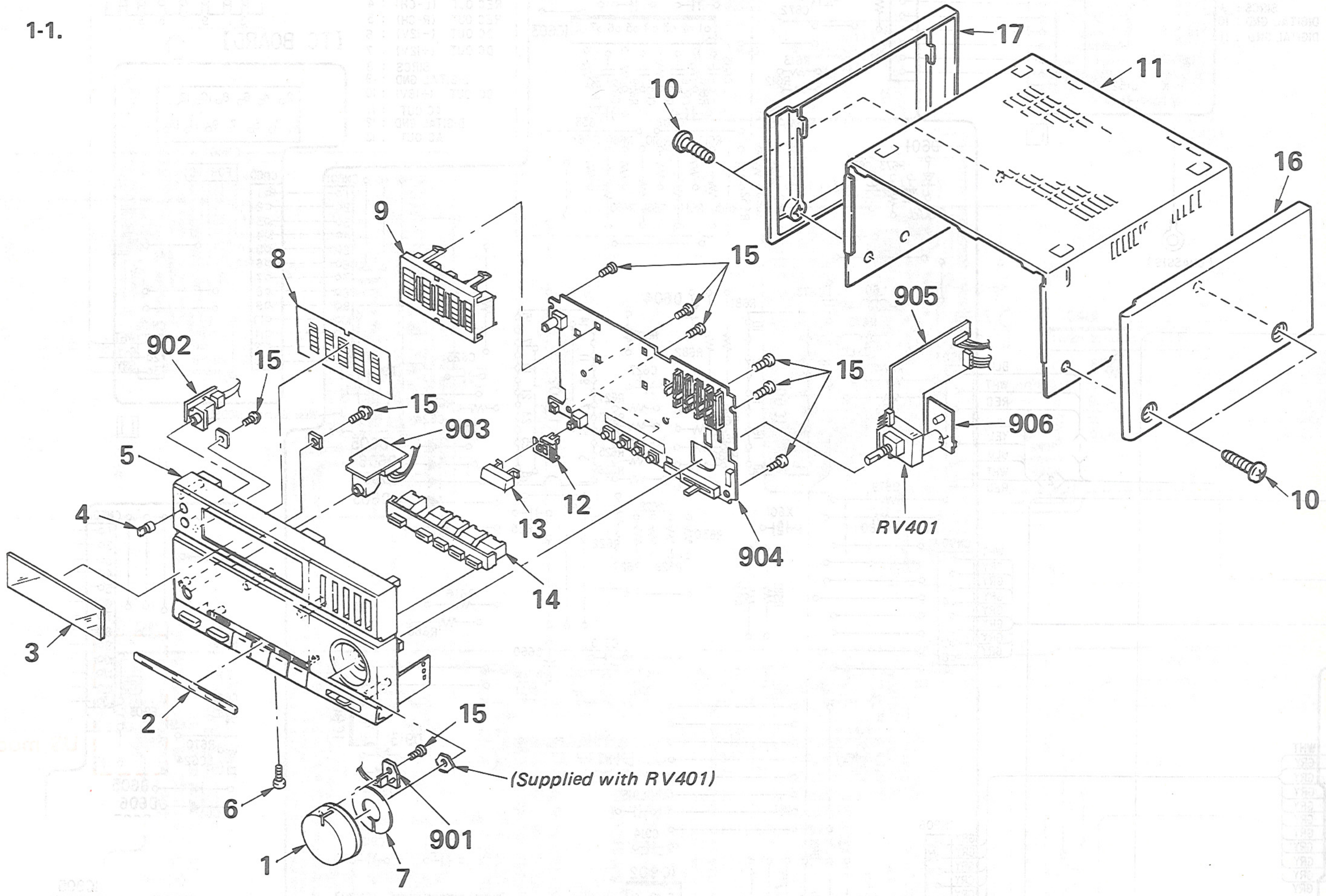
Fig. A. Using an AC voltmeter to check AC leakage.

SECTION 1
EXPLODED VIEWS

NOTE:
- The mechanical parts with no reference number in the exploded views are not supplied.
- The construction parts of an assembled part are indicated with a collation number in the remark column.
- Items marked "★" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- Due to standardization, parts with part number suffix -XX and -X may be different from the parts specified in the components used on the set.
- Color Indication of Appearance Parts
Example:
(RED) . . . KNOB, BALANCE (WHITE)
↑ ↑
Cabinet's Color Parts Color

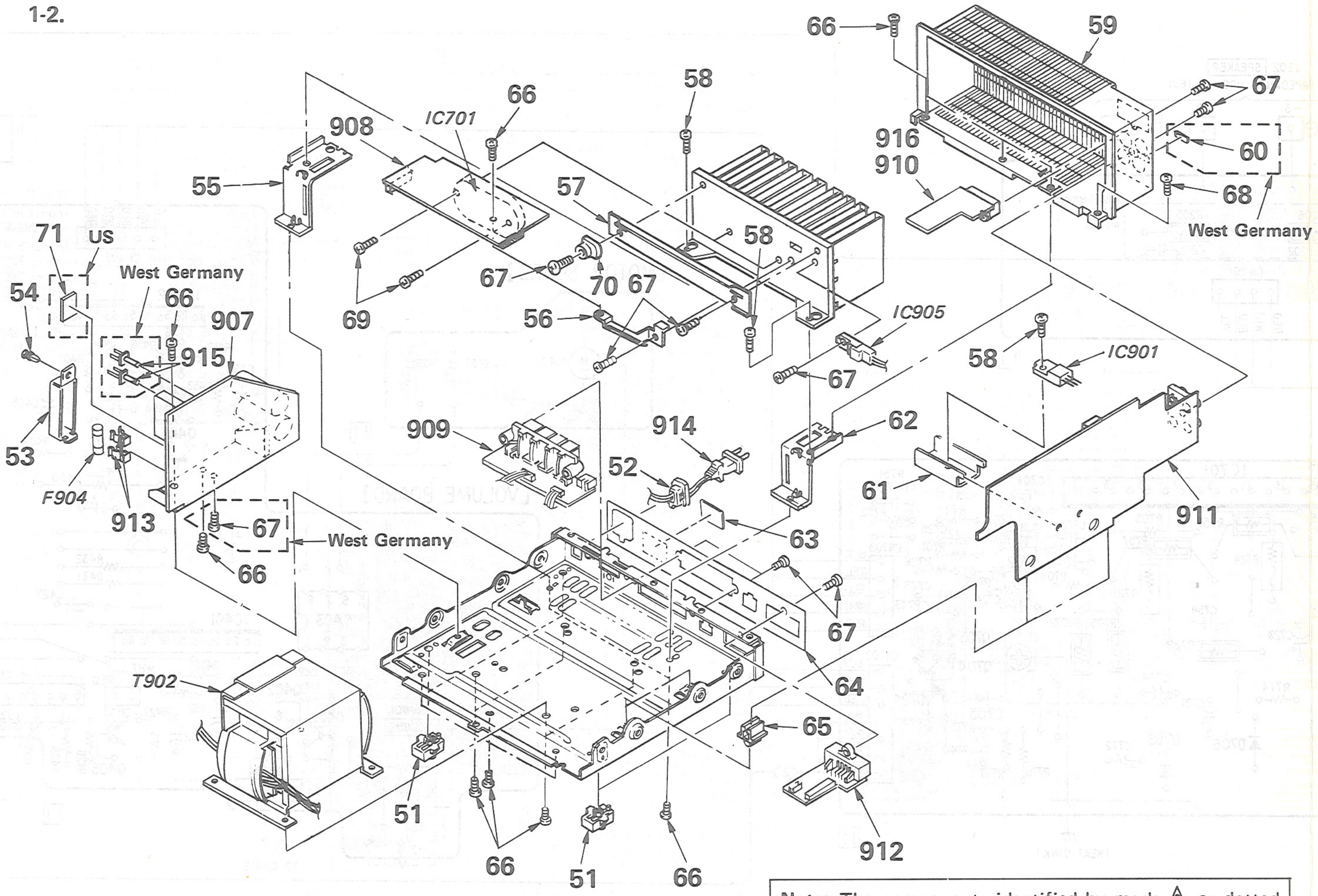
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

1-1.



No.	Part No.	Description	Remarks
1	4-922-790-01	KNOB (VOLUME)	
2	4-920-880-01	PLATE (F), INDICATION	
3	4-922-758-01	PLATE (S.A), ORNAMENTAL	
4	4-920-877-02	KNOB (VOL)(MIC LEVEL)	
5	X-4919-671-1	(West Germany)... PANEL ASSY	
5	X-4919-664-3	(US)............. PANEL ASSY	
6	7-685-870-01	SCREW +BVTT 3X5 (S)	
7	4-925-554-01	SPACER	
8	4-922-757-01	PLATE (S.A), INDICATION	
9	*4-920-881-01	HOUSE (S.A), LIGHTING	
10	4-886-821-51	SCREW, CASE, (M3X14)	
11	4-920-118-01	CASE	
12	*4-920-879-01	JOINT (D)	
13	4-914-388-31	BUTTON (DBFB)	
14	*4-920-882-01	HOUSE (F), LIGHTING	
15	7-685-534-19	SCREW +BTP 2.6X8 TYPE2 N-S	
16	4-925-524-01	PLATE (B-R), SIDE	
17	4-925-525-01	PLATE (B-L), SIDE	
901	*1-625-875-11	PC BOARD, LED	
902	*1-625-872-11	PC BOARD, MIC	
903	*1-625-878-11	PC BOARD, HP	
904	*A-4375-352-A	MOUNTED PCB, PANEL	
905	*1-625-873-11	PC BOARD, VOL	
906	*1-625-874-11	PC BOARD, MOTOR	
RV401	1-238-061-11	RES, VAR CARBON 50K/50K (VOLUME)	

1-2.

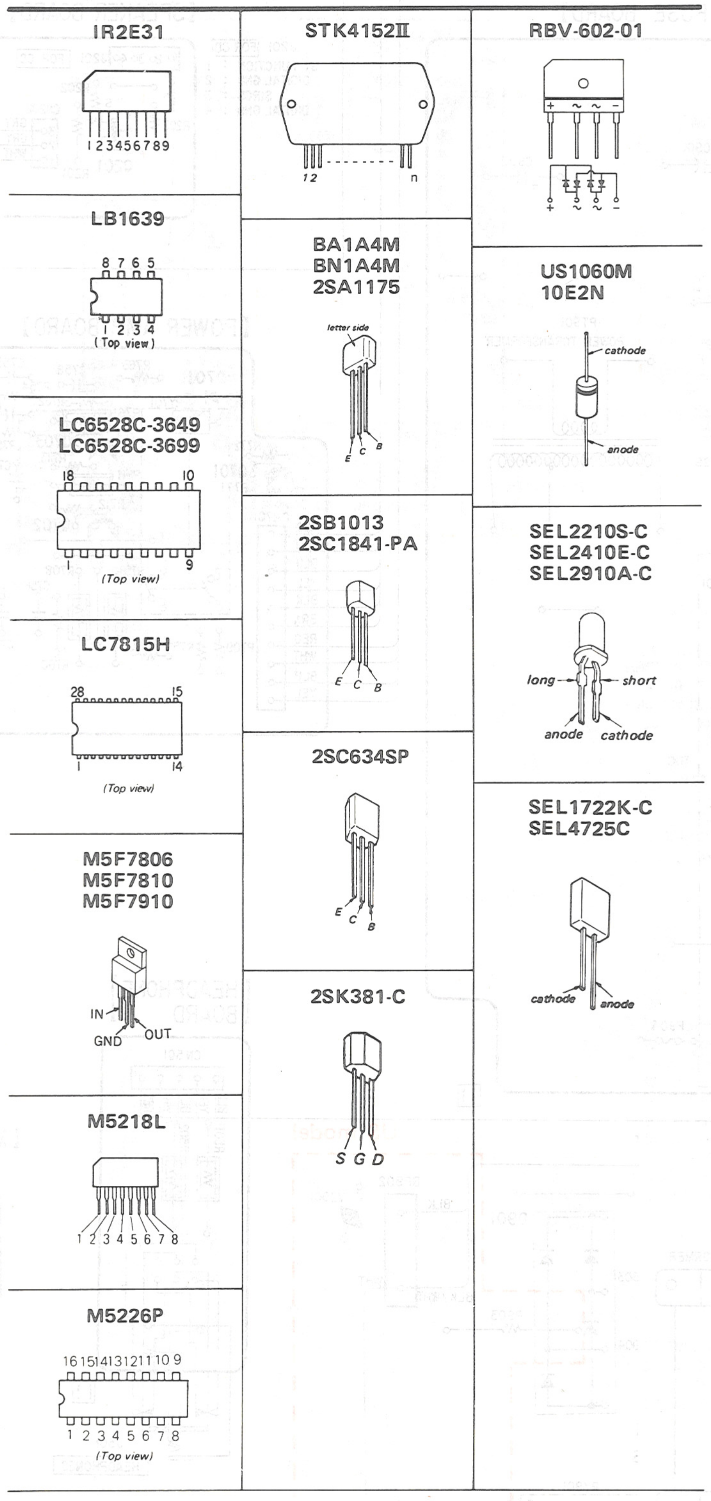

66
59
66
58
67
IC701
908
916
910
60
55
57
68
West Germany
71
US
West Germany
58
54
66
67
70
67
907
69
56
915
IC905
58
IC901
909
914
67
62
53
52
F904
61
911
913
67
West Germany
63
66
67
T902
64
65
51
66
51
66
912

Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

No.	Part No.	Description	Remarks
51	X-4902-937-1	FOOT ASSY, RUBBER	
52	*3-703-244-00	BUSHING (2104), CORD	
53	*4-922-787-01	COVER (INSULATING)	
54	3-531-576-01	RIVET	
55	*4-914-393-01	BRACKET (LEFT), HEAT SINK	
56	*4-910-064-01	BRACKET (H), PC BOARD	
57	*4-920-112-01	PLATE, BLOCK	
58	7-682-548-04	SCREW +BVTT 3X8 (S)	
59	*4-920-116-11	PLATE, JACK	
60	*4-920-876-01	(West Germany)... LABEL (PHONO)	
61	*4-880-403-11	HEAT SINK	
62	*4-914-394-01	BRACKET (RIGHT), HEAT SINK	
63	*4-922-730-01	(US)............ LABEL, MODEL NUMBER	
	*4-922-728-01	(West Germany)... LABEL, MODEL NUMBER	
64	*4-920-885-01	COVER, REAR	
65	*3-642-310-00	HOLDER, CIRCUIT BOARD	
66	7-682-147-01	SCREW +BVTT 3X6 (S)	
67	7-685-647-79	SCREW +BVTP 3X10 TYPE2 N-S	
68	7-685-648-79	SCREW +BVTP 3X12 TYPE2 IT-3	
69	7-685-650-79	SCREW +BVTP 3X16 TYPE2 IT-3	
70	*4-925-538-01	BUSHING	
71	3-701-946-23	(US)... LABEL, FUSE	
907	*1-625-879-11	PC BOARD, FUSE	
908	*A-4388-707-A	(West Germany)... MOUNTED PCB, POWER	
	*A-4388-708-A	(US)............ MOUNTED PCB, POWER	
909	*1-625-877-11	PC BOARD, SP	
910	*A-4410-662-A	MOUNTED PCB, ST	916
911	*A-4394-461-A	(US)............ MOUNTED PCB, REG	
	*A-4394-462-A	(West Germany)... MOUNTED PCB, REG	
912	*1-625-869-11	PC BOARD, TC	
913	⚠.1-533-183-11	HOLDER, FUSE	
914	⚠.1-555-750-00	(West Germany)... CORD, POWER	
914	⚠.1-559-819-11	(US)............ CORD, POWER	
915	*1-535-476-11	(West Germany)... TERMINAL	
916	*1-625-870-11	PC BOARD, ST	
F904	⚠.1-532-285-00	(West Germany)... FUSE, TIME-LAG	1.25A
F904	⚠.1-532-743-11	(US)............ FUSE, GLASS TUBE	2A
IC701	⚠.8-749-941-52	IC STK4152II	
IC901	8-759-604-50	IC M5F7910	
IC905	8-759-604-32	IC M5F7810	
T902	⚠.1-449-193-11	(West Germany)... TRANSFORMER, POWER	
T902	⚠.1-449-288-11	(US)............ TRANSFORMER, POWER	

SECTION 2
DIAGRAMS

2-1. SEMICONDUCTOR LEAD LAYOUTS

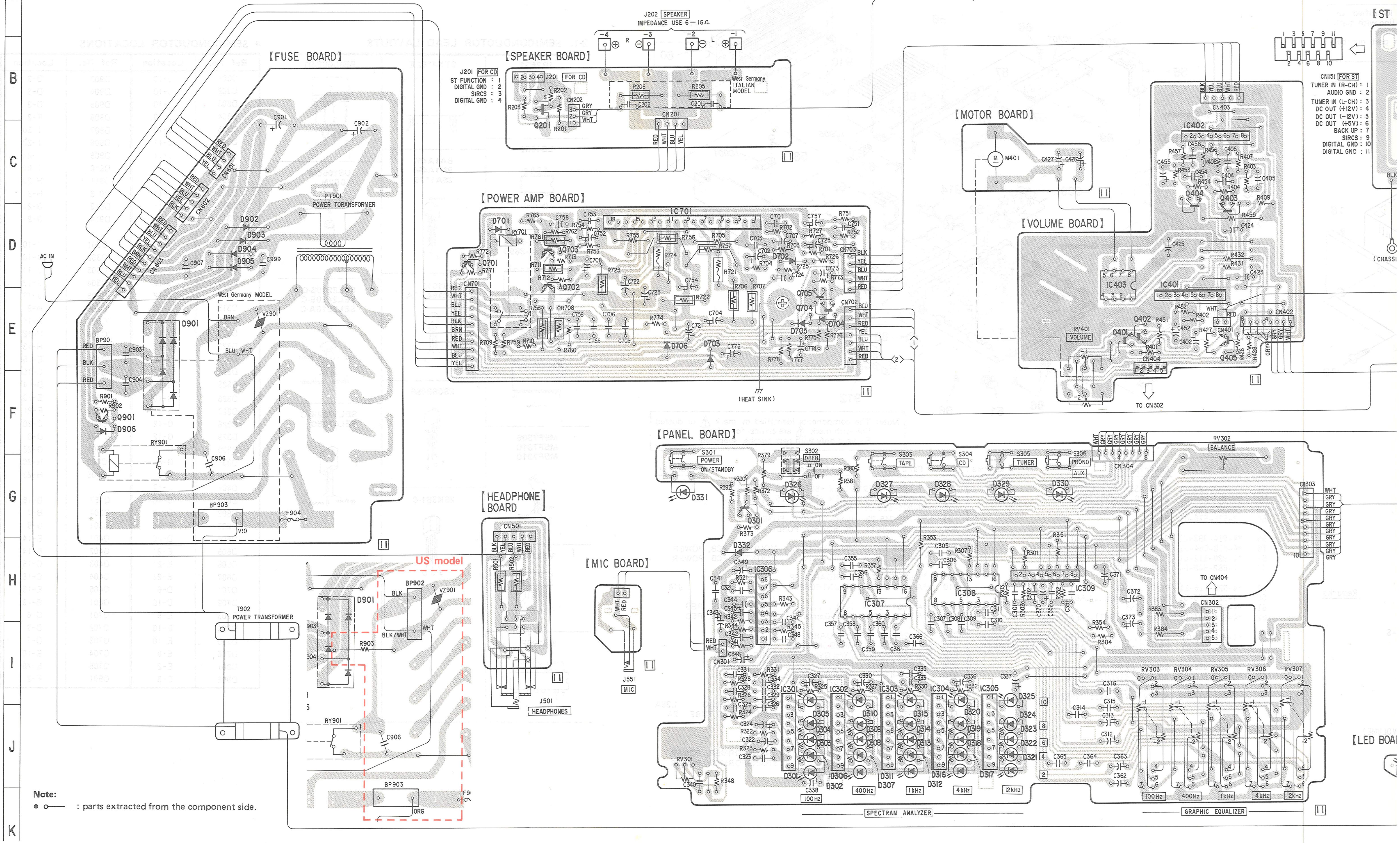

IR2E31
123456789
STK4152II
12
n
RBV-602-01
+
~
~
−
LB1639
8 7 6 5
1 2 3 4
(Top view)
BA1A4M
BN1A4M
2SA1175
letter side
E
C
B
US1060M
10E2N
cathode
anode
LC6528C-3649
LC6528C-3699
18
10
1
9
(Top view)
2SB1013
2SC1841-PA
E
C
B
SEL2210S-C
SEL2410E-C
SEL2910A-C
long
short
anode
cathode
LC7815H
28
15
1
14
(Top view)
2SC634SP
E
C
B
SEL1722K-C
SEL4725C
cathode
anode
M5F7806
M5F7810
M5F7910
IN
GND
OUT
2SK381-C
S G D
M5218L
1 2 3 4 5 6 7 8
M5226P
16 15 14 13 12 11 10 9
1 2 3 4 5 6 7 8
(Top view)

● SEMICONDUCTOR LOCATIONS

Ref. No.	Location	Ref. No.	Location
D301	J-10	D903	D-3
D302	J-10	D904	D-3
D303	J-10	D905	D-3
D304	J-10	D906	F-2
D305	J-10	D907	I-20
D306	J-11	D908	I-20
D307	J-11	D909	I-21
D308	J-11	D910	I-21
D309	J-11	D911	H-21
D310	J-11	D912	H-21
D311	J-11	D913	G-21
D312	J-11	D914	G-21
D313	J-11		
D314	J-11	IC301	J-10
D315	J-11	IC302	J-10
D316	J-12	IC303	J-11
D317	J-12	IC304	J-12
D318	J-12	IC305	J-12
D319	J-12	IC306	H-9
D320	J-12	IC307	H-11
D321	J-12	IC308	H-12
D322	J-12	IC309	H-13
D323	J-12	IC401	E-15
D324	J-12	IC402	C-15
D325	J-12	IC403	D-14
D326	G-10	IC601	E-19
D327	G-11	IC602	E-21
D328	G-12	IC603	C-20
D329	G-12	IC701	D-8
D330	G-13	IC901	G-22
D331	G-8	IC902	H-20
D332	H-9	IC905	H-23
D401	J-17		
D601	D-18	Q151	B-18
D602	D-18	Q201	B-7
D603	F-21	Q301	G-9
D604	D-20	Q401	E-14
D605	E-21	Q402	E-14
D606	E-21	Q403	C-15
D607	E-21	Q404	C-15
D701	D-6	Q405	E-15
D702	D-10	Q601	B-19
D703	E-9	Q701	D-6
D704	E-10	Q702	D-7
D705	E-10	Q703	D-7
D706	E-8	Q704	E-10
D901	E-2	Q705	E-10
D902	D-3	Q901	F-2

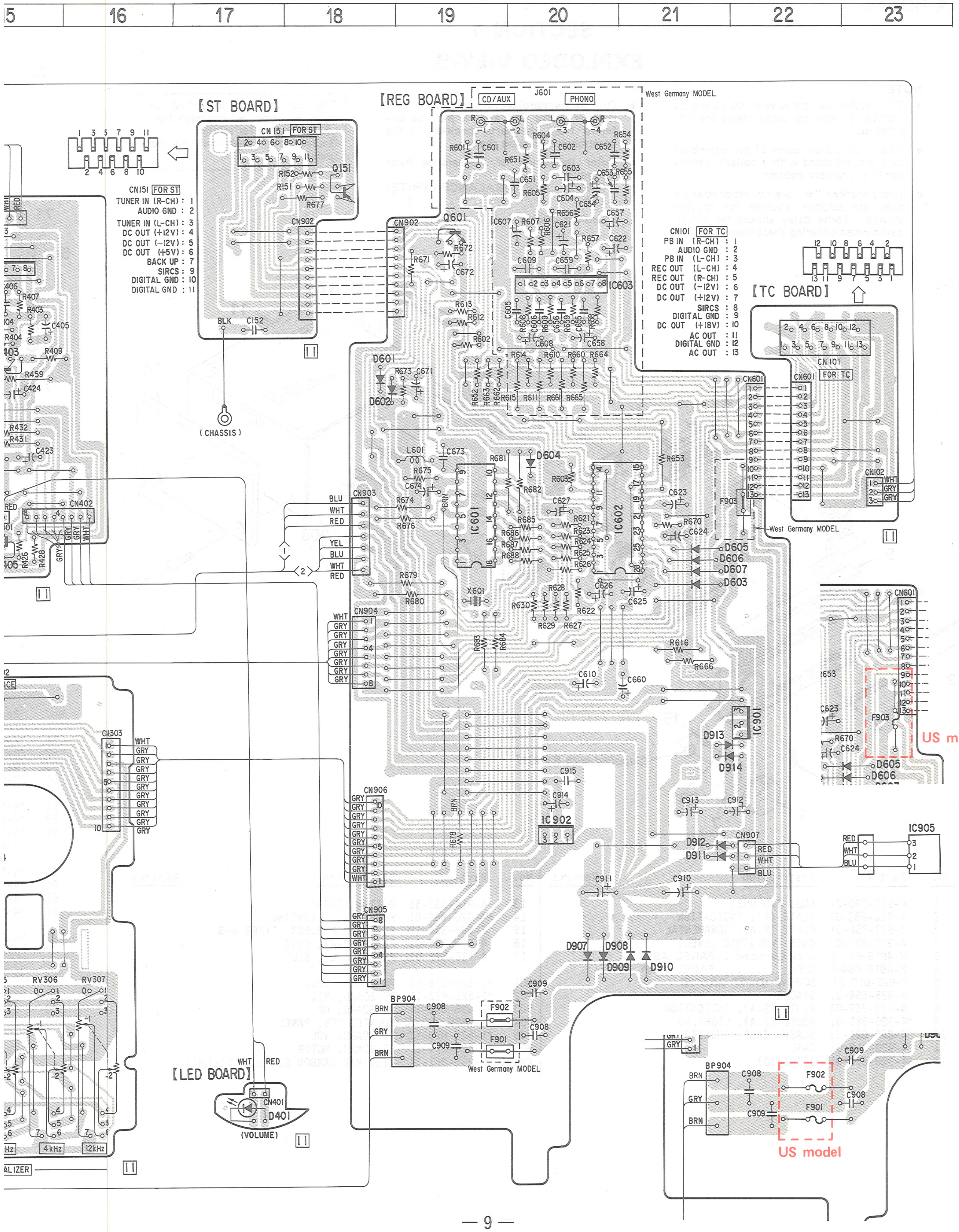
2-2. PRINTED WIRING BOARDS

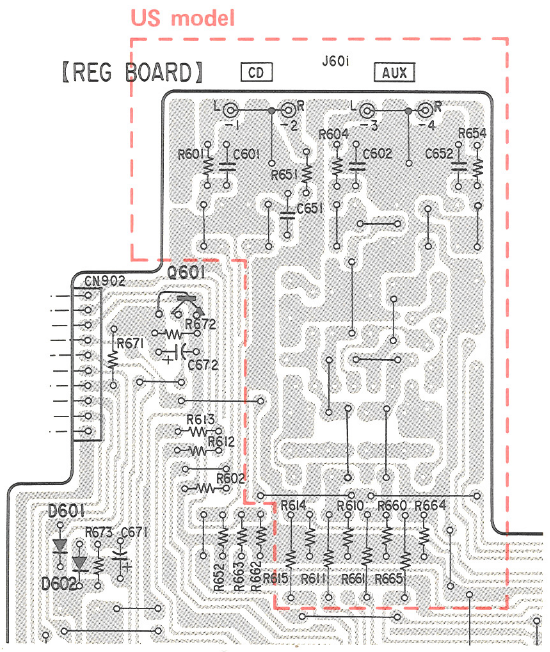
- See page 6 for semiconductor lead layouts.
- See page 6 for semiconductor locations.

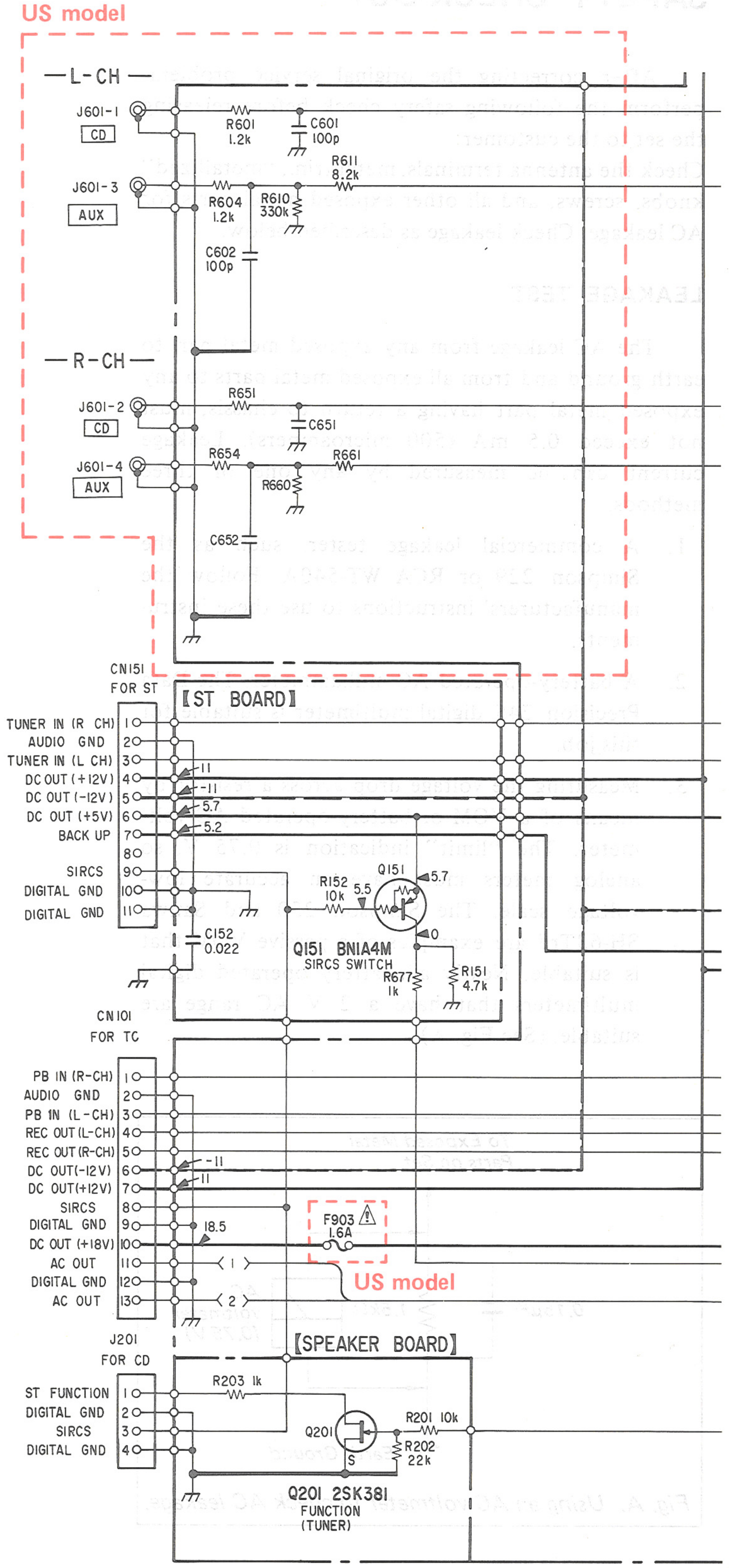

[FUSE BOARD]
[SPEAKER BOARD]
J202 SPEAKER
IMPEDANCE USE 6－16Ω
J201 FOR CD
ST FUNCTION : 1
DIGITAL GND : 2
SIRCS : 3
DIGITAL GND : 4
West Germany ITALIAN MODEL
[MOTOR BOARD]
M401
[VOLUME BOARD]
RV401 VOLUME
TO CN302
[ST
CN151 FOR ST
TUNER IN (R-CH) : 1
AUDIO GND : 2
TUNER IN (L-CH) : 3
DC OUT (+12V) : 4
DC OUT (−12V) : 5
DC OUT (+5V) : 6
BACK UP : 7
SIRCS : 9
DIGITAL GND : 10
DIGITAL GND : 11
(CHASSIS)
[POWER AMP BOARD]
IC701
(HEAT SINK)
PT901
POWER TORANSFORMER
AC IN
West Germany MODEL
D901
RY901
BP901
BP903
F904
[HEADPHONE BOARD]
CN501
J501
HEADPHONES
[MIC BOARD]
J551
MIC
US model
BP902
VZ901
T902
POWER TRANSFORMER
[PANEL BOARD]
S301 POWER ON/STANDBY
S302 DBFB ON OFF
S303 TAPE
S304 CD
S305 TUNER
S306 PHONO AUX
RV302 BALANCE
CN303
CN304
TO CN404
CN302
RV301
RV303
RV304
RV305
RV306
RV307
100Hz
400Hz
1kHz
4kHz
12kHz
SPECTRAM ANALYZER
GRAPHIC EQUALIZER
[LED BOA

Note:

● ○— : parts extracted from the component side.

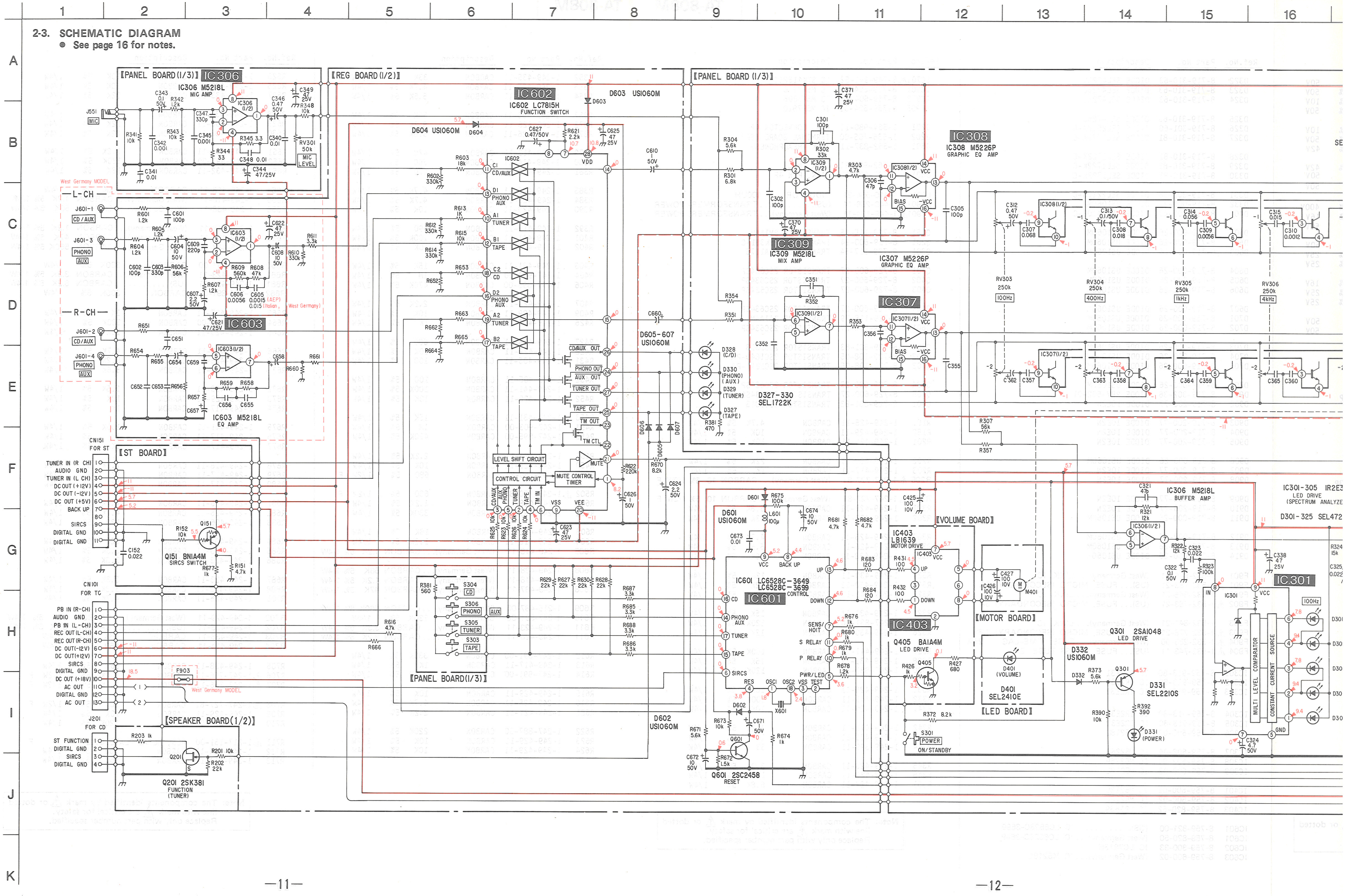

15
16
17
18
19
20
21
22
23
[ST BOARD]
[REG BOARD]
[TC BOARD]
[LED BOARD]
CD/AUX
PHONO
J601
West Germany MODEL
CN151 FOR ST
TUNER IN (R-CH) : 1
AUDIO GND : 2
TUNER IN (L-CH) : 3
DC OUT (+12V) : 4
DC OUT (−12V) : 5
DC OUT (+5V) : 6
BACK UP : 7
SIRCS : 9
DIGITAL GND : 10
DIGITAL GND : 11
CN101 FOR TC
PB IN (R-CH) : 1
AUDIO GND : 2
PB IN (L-CH) : 3
REC OUT (L-CH) : 4
REC OUT (R-CH) : 5
DC OUT (−12V) : 6
DC OUT (+12V) : 7
SIRCS : 8
DIGITAL GND : 9
DC OUT (+18V) : 10
AC OUT : 11
DIGITAL GND : 12
AC OUT : 13
Q151
Q601
IC601
IC602
IC603
IC901
IC902
IC905
CN902
CN903
CN904
CN905
CN906
CN907
CN303
CN402
CN601
CN102
CN401
BP904
D401
(CHASSIS)
(VOLUME)
RV306
RV307
4kHz
12kHz
F901
F902
F903
US model


US model
[REG BOARD]
CD
J601
AUX
CN902
Q601
D601
D602

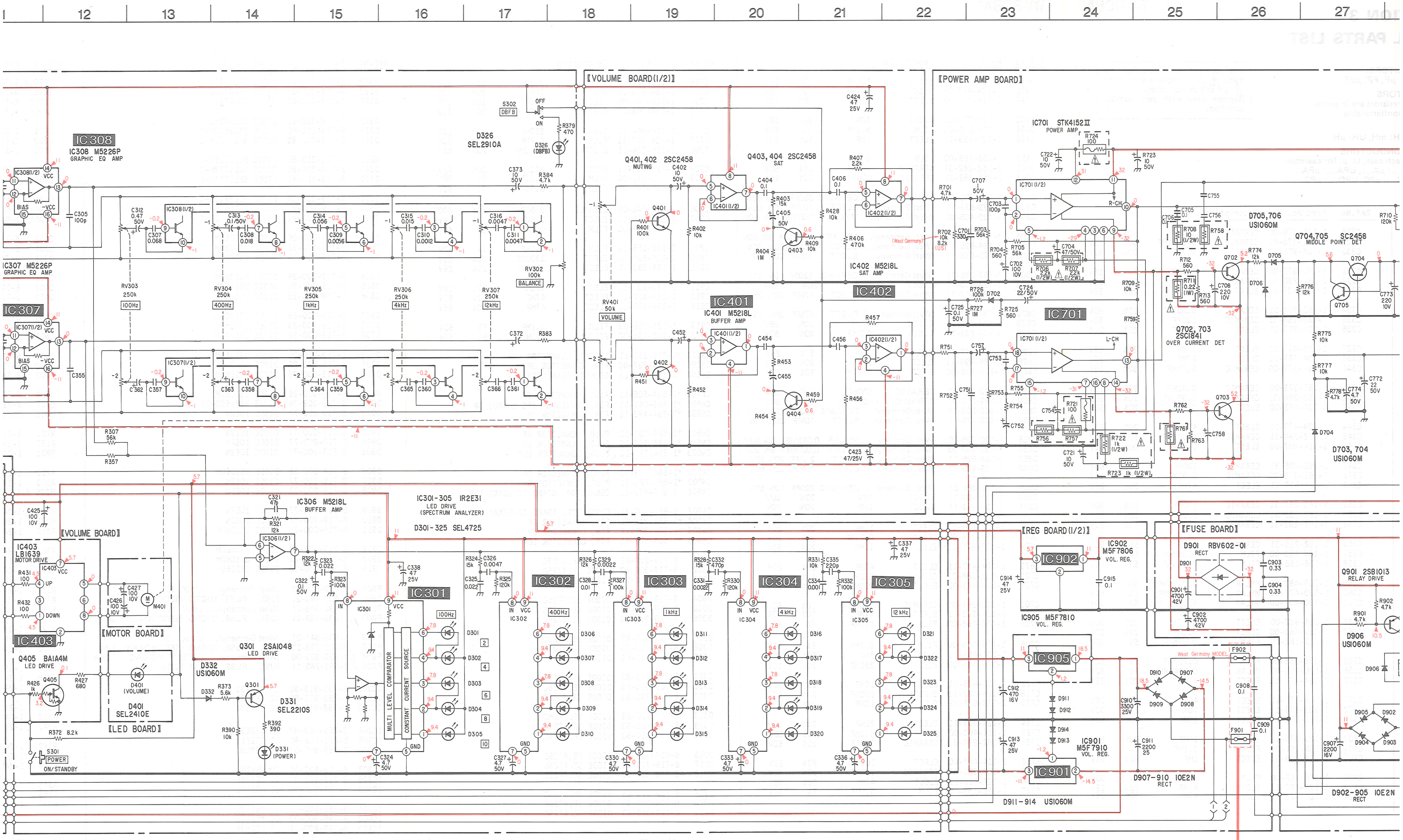

US model
L-CH
R-CH
J601-1 CD
J601-3 AUX
J601-2 CD
J601-4 AUX
R601 1.2k
C601 100p
R611 8.2k
R604 1.2k
R610 330k
C602 100p
CN151 FOR ST
[ST BOARD]
TUNER IN (R CH)
AUDIO GND
TUNER IN (L CH)
DC OUT (+12V)
DC OUT (−12V)
DC OUT (+5V)
BACK UP
SIRCS
DIGITAL GND
DIGITAL GND
C152 0.022
Q151 BN1A4M SIRCS SWITCH
R152 10k
R677 1k
R151 4.7k
CN101 FOR TC
PB IN (R-CH)
AUDIO GND
PB IN (L-CH)
REC OUT (L-CH)
REC OUT (R-CH)
DC OUT (−12V)
DC OUT (+12V)
SIRCS
DIGITAL GND
DC OUT (+18V)
AC OUT
DIGITAL GND
AC OUT
F903 1.6A
J201 FOR CD
[SPEAKER BOARD]
ST FUNCTION
DIGITAL GND
SIRCS
DIGITAL GND
R203 1k
R201 10k
R202 22k
Q201 2SK381 FUNCTION (TUNER)

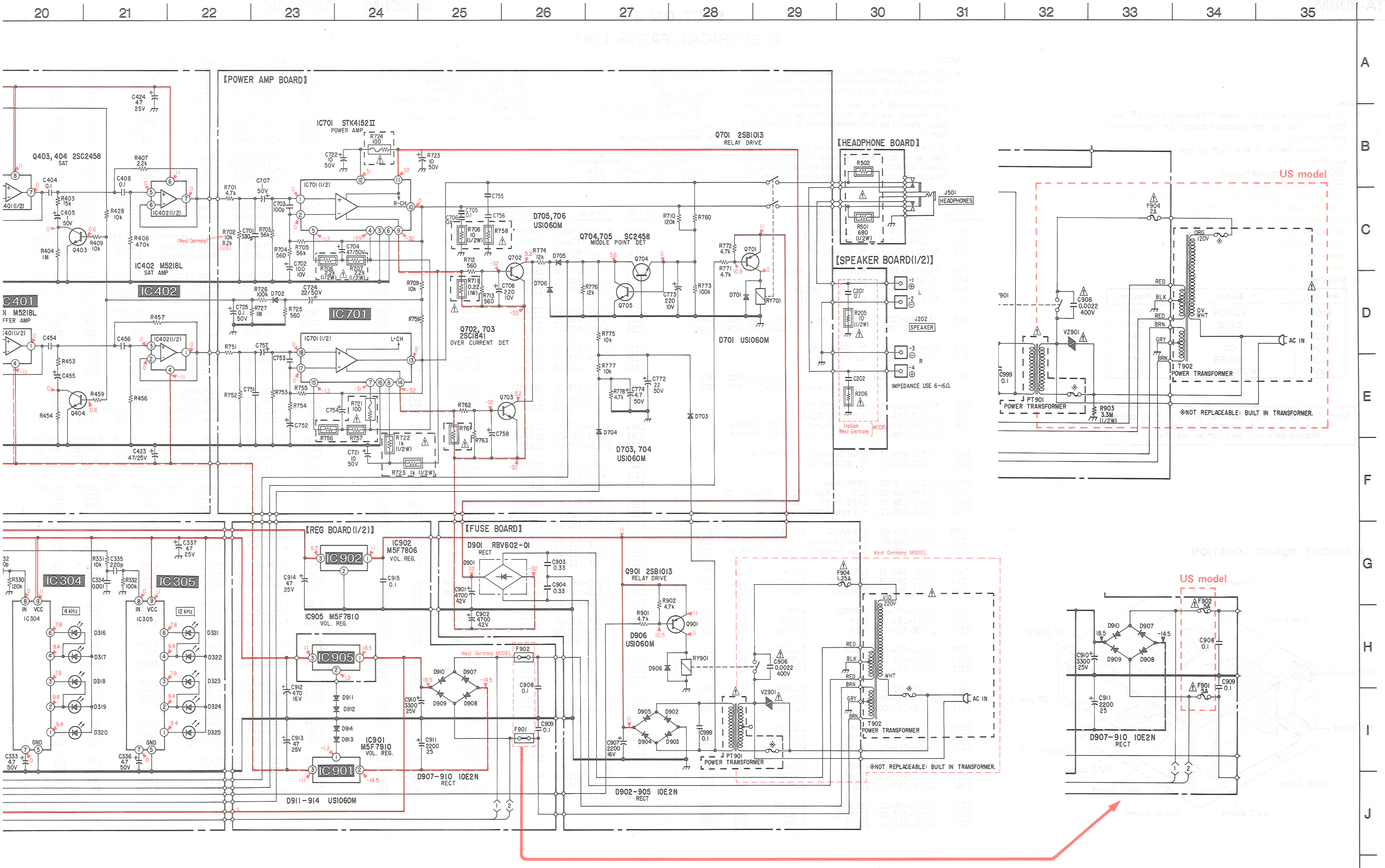
2-3. SCHEMATIC DIAGRAM

- See page 16 for notes.



[PANEL BOARD (1/3)] IC306
IC306 M5218L MIC AMP
J551 MIC
RV301 50k MIC LEVEL
[REG BOARD (1/2)]
IC602
IC602 LC7815H FUNCTION SWITCH
D603 US1060M
D604 US1060M
West Germany MODEL
L-CH
J601-1 CD/AUX
J601-3 PHONO AUX
R-CH
J601-2 CD/AUX
J601-4 PHONO AUX
IC603
IC603 M5218L EQ AMP
CI CD/AUX
D1 PHONO AUX
A1 TUNER
B1 TAPE
C2 CD
D2 PHONO AUX
A2 TUNER
B2 TAPE
CD/AUX OUT
PHONO OUT
AUX OUT
TUNER OUT
TAPE OUT
TM OUT
TM CTL
LEVEL SHIFT CIRCUIT
CONTROL CIRCUIT
MUTE CONTROL TIMER
MUTE
VDD
VSS
VEE
D605-607 US1060M
D328 (C/D)
D330 (PHONO) (AUX)
D329 (TUNER)
D327 (TAPE)
D327-330 SEL1722K
IC308
IC308 M5226P GRAPHIC EQ AMP
IC309
IC309 M5218L MIX AMP
IC307
IC307 M5226P GRAPHIC EQ AMP
RV303 250k 100Hz
RV304 250k 400Hz
RV305 250k 1kHz
RV306 250k 4kHz
CN151 FOR ST
[ST BOARD]
TUNER IN (R CH)
AUDIO GND
TUNER IN (L CH)
DC OUT (+12V)
DC OUT (-12V)
DC OUT (+5V)
BACK UP
SIRCS
DIGITAL GND
DIGITAL GND
Q151 BN1A4M SIRCS SWITCH
CN101 FOR TC
PB IN (R-CH)
AUDIO GND
PB IN (L-CH)
REC OUT (L-CH)
REC OUT (R-CH)
DC OUT (-12V)
DC OUT (+12V)
SIRCS
DIGITAL GND
DC OUT (+18V)
AC OUT
DIGITAL GND
AC OUT
F903
West Germany MODEL
J201 FOR CD
ST FUNCTION
DIGITAL GND
SIRCS
DIGITAL GND
[SPEAKER BOARD (1/2)]
Q201 2SK381 FUNCTION (TUNER)
S304 CD
S306 PHONO
S305 TUNER
S303 TAPE
AUX
[PANEL BOARD (1/3)]
D601 US1060M
IC601
IC601 LC6528C-3649 LC6528C-3699 CONTROL
CD
PHONO AUX
TUNER
TAPE
SIRCS
SENS/HOIT
S RELAY
P RELAY
PWR/LED
RES OSC1 OSC2 VSS TEST
UP
DOWN
X601
D602 US1060M
Q601 2SC2458 RESET
IC403
IC403 LB1639 MOTOR DRIVE
[VOLUME BOARD]
M401
[MOTOR BOARD]
Q405 BA1A4M LED DRIVE
D401 (VOLUME)
D401 SEL2410E
[LED BOARD]
S301 POWER ON/STANDBY
D332 US1060M
Q301 2SA1048 LED DRIVE
D331 SEL2210S
D331 (POWER)
IC306 M5218L BUFFER AMP
IC301
IC301-305 IR2E3 LED DRIVE (SPECTRUM ANALYZE
D301-325 SEL472
MULTI LEVEL COMPARATOR
CONSTANT CURRENT SOURCE
100Hz


12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
[VOLUME BOARD(1/2)]
[POWER AMP BOARD]
IC308
IC308 M5226P
GRAPHIC EQ AMP
IC307
IC307 M5226P
GRAPHIC EQ AMP
S302
DBFB
OFF
ON
D326
SEL2910A
RV302
100k
BALANCE
RV303
250k
100Hz
RV304
250k
400Hz
RV305
250k
1kHz
RV306
250k
4kHz
RV307
250k
12kHz
RV401
50k
VOLUME
Q401, 402 2SC2458
MUTING
Q403, 404 2SC2458
SAT
IC401
IC401 M5218L
BUFFER AMP
IC402
IC402 M5218L
SAT AMP
IC701 STK4152Ⅱ
POWER AMP
IC701
R-CH
L-CH
(West Germany)
(US)
D705,706
USI060M
Q704,705 2SC2458
MIDDLE POINT DET
Q702, 703
2SC1841
OVER CURRENT DET
D703, 704
USI060M
IC306 M5218L
BUFFER AMP
IC301-305 IR2E31
LED DRIVE
(SPECTRUM ANALYZER)
D301-325 SEL4725
IC301
IC302
IC303
IC304
IC305
100Hz
400Hz
1kHz
4kHz
12kHz
MULTI LEVEL COMPARATOR
CONSTANT CURRENT SOURCE
[VOLUME BOARD]
IC403
LB1639
MOTOR DRIVE
UP
DOWN
M401
[MOTOR BOARD]
Q405 BA1A4M
LED DRIVE
D401
(VOLUME)
D401
SEL2410E
[LED BOARD]
Q301 2SA1048
LED DRIVE
D332
USI060M
D331
SEL2210S
D331
(POWER)
S301
POWER
ON/STANDBY
[REG BOARD(1/2)]
IC902
M5F7806
VOL. REG.
IC905 M5F7810
VOL. REG.
IC905
IC901
M5F7910
VOL. REG.
D911-914 USI060M
D907-910 10E2N
RECT
[FUSE BOARD]
D901 RBV602-01
RECT
West Germany MODEL
F902
F901
Q901 2SB1013
RELAY DRIVE
D906
USI060M
D902-905 10E2N
RECT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J
K
[POWER AMP BOARD]
IC701 STK4152Ⅱ
POWER AMP
IC701 (1/2)
R-CH
IC701 (1/2)
L-CH
IC701
Q701 2SB1013
RELAY DRIVE
Q403, 404 2SC2458
SAT
IC402 M5218L
SAT AMP
IC402
IC401
M5218L
BUFFER AMP
IC402(1/2)
IC401(1/2)
D705,706
US1060M
Q704,705 SC2458
MIDDLE POINT DET
Q702, 703
2SC1841
OVER CURRENT DET
D701 US1060M
D703, 704
US1060M
RY701
(West Germany)
(US)
[HEADPHONE BOARD]
J501
HEADPHONES
R502
R501
680
(1/2W)
[SPEAKER BOARD(1/2)]
J202
SPEAKER
IMPEDANCE USE 6~16Ω
Italian
West Germany
MODEL
US model
F904
2A
C906
0.0022
400V
VZ901
T902
POWER TRANSFORMER
PT901
POWER TRANSFORMER
R903
3.3M
(1/2W)
ORG
120V
0V
WHT
RED
BLK
BRN
GRY
AC IN
※NOT REPLACEABLE: BUILT IN TRANSFORMER.
[REG BOARD(1/2)]
IC902
M5F7806
VOL. REG.
IC902
IC905 M5F7810
VOL. REG.
IC905
IC901
M5F7910
VOL. REG.
IC901
D911-914 US1060M
D907-910 10E2N
RECT
IC304
IC305
4 kHz
12 kHz
IN
VCC
GND
D316
D317
D318
D319
D320
D321
D322
D323
D324
D325
[FUSE BOARD]
D901 RBV602-01
RECT
C901
4700
42V
C902
4700
42V
C903
0.33
C904
0.33
F902
F901
West Germany MODEL
Q901 2SB1013
RELAY DRIVE
D906
US1060M
RY901
D902-905 10E2N
RECT
F904
1.25A
V10
220V
C909
0.1
C999
0.1
C907
2200
16V
US model
F902
5A
F901
5A
C908
0.1
C910
3300
25V
C911
2200
25
D907-910 10E2N
RECT

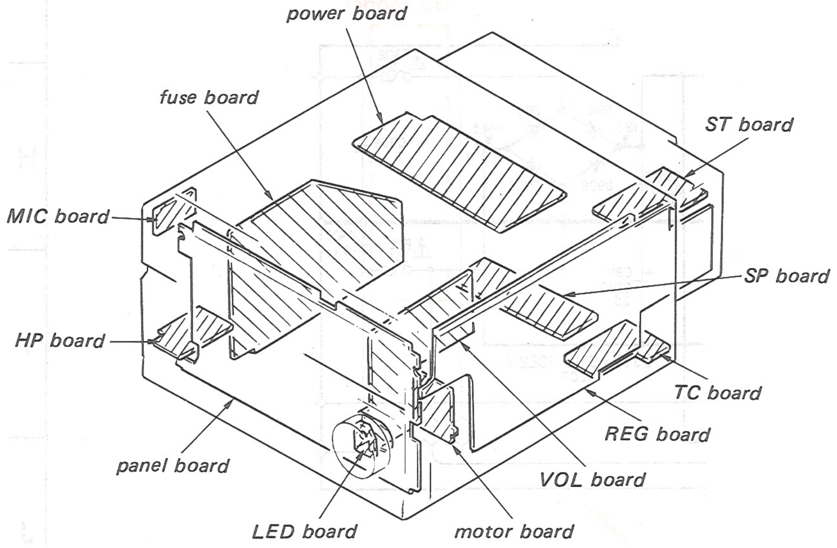
Note:

- All capacitors are in μF unless otherwise noted. pF: $\mu\mu$F 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and $^1/_4$W or less unless otherwise specified.
- ▭ : nonflammable resistor.
- ▭ : fusible resistor.
- Voltage and waveforms are dc with respect to ground under no signal (detuned) conditions.
- Voltages are taken with a VOM (50 kΩ/V). Voltage variations may be noted due to normal production tolerances.
- ━━ : B+ Line.
- ▬▬ : B– Line.
- Switches:

Ref. No.	Switch	Position
S301	POWER	OFF
S302	DBFB	OFF
S303	TAPE	OFF
S304	CD	OFF
S305	TUNER	OFF
S306	PHONO (AUX)	OFF

Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

- **CIRCUIT BOARD LOCATION**



SECTION 3

ELECTRICAL PARTS LIST

NOTE:

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- If there are two or more same circuits in a set such as a stereophonic machine, only typical circuit parts may be indicated and capacitors and resistors in other same circuits may be omitted.

CAPACITORS:
MF: μF, PF: $\mu\mu$F.

RESISTORS
- All resistors are in ohms.
- F: nonflammable

COILS
- MMH: mH, UH: μH

SEMICONDUCTORS
In each case, U: μ, for example:
UA...: μA..., UPA...: μPA...,
UPC...: μPC, UPD...: μPD...

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Ref.No.	Part No.	Description			
901	*1-625-875-11	PC BOARD, LED			
902	*1-625-872-11	PC BOARD, MIC			
903	*1-625-878-11	PC BOARD, HP			
904	*A-4375-352-A	MOUNTED PCB, PANEL			
905	*1-625-873-11	PC BOARD, VOL			
906	*1-625-874-11	PC BOARD, MOTOR			
907	*1-625-879-11	PC BOARD, FUSE			
908	*A-4388-707-A	(West Germany)... MOUNTED PCB, POWER			
	*A-4388-708-A	(US)........... MOUNTED PCB, POWER			
909	*1-625-877-11	PC BOARD, SP			
910	*A-4410-662-A	MOUNTED PCB, ST			
911	*A-4394-461-A	(US)........... MOUNTED PCB, REG			
	*A-4394-462-A	(West Germany)... MOUNTED PCB, REG			
912	*1-625-869-11	PC BOARD, TC			
913	⚠.1-533-183-11	HOLDER, FUSE			
914	⚠.1-555-750-00	(West Germany)... CORD, POWER			
	⚠.1-559-819-00	(US)........... CORD, POWER			
915	*1-535-476-11	(West Germany)... TERMINAL			
916	*1-625-870-11	PC BOARD, ST			
BP901	*1-535-116-00	TERMINAL			
BP902	*1-535-139-00	(US)... BASE POST 22mm 2P			
BP903	1-535-139-00	BASE POST 22mm 2P			
BP904	*1-508-830-12	H TYPE BASE POST			
C152	1-101-005-00	CERAMIC	0.022MF		50V
C201	1-136-165-91	(West Germany)... FILM	0.1MF	5%	50V
C202	1-136-165-91	(West Germany)... FILM	0.1MF	5%	50V
C301	1-162-282-31	CERAMIC	100PF	10%	50V
C302	1-162-282-31	CERAMIC	100PF	10%	50V
C305	1-162-282-31	CERAMIC	100PF	10%	50V
C306	1-162-215-31	CERAMIC	47PF	5%	50V
C307	1-136-163-00	FILM	0.068MF	5%	50V
C308	1-136-156-00	FILM	0.018MF	5%	50V
C309	1-130-480-00	MYLAR	0.0056MF	5%	50V
C310	1-130-472-00	MYLAR	0.0012MF	5%	50V
C311	1-130-467-00	MYLAR	470PF	5%	50V
C312	1-124-902-00	ELECT	0.47MF	20%	50V
C313	1-124-463-00	ELECT	0.1MF	20%	50V
C314	1-136-162-00	FILM	0.056MF	5%	50V
C315	1-136-155-00	FILM	0.015MF	5%	50V
C316	1-130-479-00	MYLAR	0.0047MF	5%	50V
C321	1-162-215-31	CERAMIC	47PF	5%	50V
C322	1-124-463-00	ELECT	0.1MF	20%	50V
C323	1-161-494-00	CERAMIC	0.022MF		25V
C324	1-124-927-11	ELECT	4.7MF	20%	50V
C325	1-161-494-00	CERAMIC	0.022MF		25V
C326	1-161-377-00	CERAMIC	0.0047MF	30%	16V
C327	1-124-927-11	ELECT	4.7MF	20%	50V
C328	1-161-379-00	CERAMIC	0.01MF	30%	16V
C329	1-161-375-00	CERAMIC	0.0022MF	30%	16V
C330	1-124-927-11	ELECT	4.7MF	20%	50V
C331	1-161-375-00	CERAMIC	0.0022MF	30%	16V
C332	1-162-290-31	CERAMIC	470PF	10%	50V
C333	1-124-927-11	ELECT	4.7MF	20%	50V
C334	1-162-294-31	CERAMIC	0.001MF	10%	50V
C335	1-162-286-31	CERAMIC	220PF	10%	50V
C336	1-124-927-11	ELECT	4.7MF	20%	50V
C337	1-124-477-11	ELECT	47MF	20%	25V
C338	1-124-477-11	ELECT	47MF	20%	25V
C340	1-161-379-00	CERAMIC	0.01MF	30%	16V
C341	1-161-379-00	CERAMIC	0.01MF	30%	16V
C342	1-162-294-31	CERAMIC	0.001MF	10%	50V
C343	1-124-463-00	ELECT	0.1MF	20%	50V
C344	1-124-477-11	ELECT	47MF	20%	25V
C345	1-162-294-31	CERAMIC	0.001MF	10%	50V
C346	1-124-902-00	ELECT	0.47MF	20%	50V
C347	1-162-288-31	CERAMIC	330PF	10%	50V
C348	1-161-379-00	CERAMIC	0.01MF	30%	16V
C349	1-124-477-11	ELECT	47MF	20%	25V
C351	1-162-282-31	CERAMIC	100PF	10%	50V
C352	1-162-282-31	CERAMIC	100PF	10%	50V
C355	1-162-282-31	CERAMIC	100PF	10%	50V
C356	1-162-215-31	CERAMIC	47PF	5%	50V
C357	1-136-163-00	FILM	0.068MF	5%	50V
C358	1-136-156-00	FILM	0.018MF	5%	50V
C359	1-130-480-00	MYLAR	0.0056MF	5%	50V
C360	1-130-472-00	MYLAR	0.0012MF	5%	50V
C361	1-130-467-00	MYLAR	470PF	5%	50V
C362	1-124-902-00	ELECT	0.47MF	20%	50V
C363	1-124-463-00	ELECT	0.1MF	20%	50V
C364	1-136-162-00	FILM	0.056MF	5%	50V
C365	1-136-155-00	FILM	0.015MF	5%	50V
C366	1-130-479-00	MYLAR	0.0047MF	5%	50V
C370	1-124-477-11	ELECT	47MF	20%	25V
C371	1-124-477-11	ELECT	47MF	20%	25V
C372	1-123-875-11	ELECT	10MF	20%	50V
C373	1-123-875-11	ELECT	10MF	20%	50V
C402	1-123-875-11	ELECT	10MF	20%	50V
C404	1-136-165-00	FILM	0.1MF	5%	50V
C405	1-124-499-11	ELECT	1MF	20%	50V
C406	1-136-165-00	FILM	0.1MF	5%	50V
C423	1-124-477-11	ELECT	47MF	20%	25V
C424	1-124-477-11	ELECT	47MF	20%	25V

Ref.No.	Part No.	Description
C425	1-124-443-00	ELECT 100MF 20% 10V
C426	1-124-443-00	ELECT 100MF 20% 10V
C427	1-124-443-00	ELECT 100MF 20% 10V
C452	1-123-875-11	ELECT 10MF 20% 50V
C454	1-136-165-00	FILM 0.1MF 5% 50V
C455	1-124-499-11	ELECT 1MF 20% 50V
C456	1-136-165-00	FILM 0.1MF 5% 50V
C601	1-162-282-31	CERAMIC 100PF 10% 50V
C602	1-162-282-31	CERAMIC 100PF 10% 50V
C603	1-162-288-31	(West Germany)... CERAMIC 330PF 10% 50V
C604	1-123-875-11	(West Germany)... ELECT 10MF 20% 50V
C605	1-130-485-00	(West Germany)... MYLAR 0.015MF 5% 50V
C606	1-130-480-00	(West Germany)... MYLAR 0.0056MF 5% 50V
C607	1-124-925-11	(West Germany)... ELECT 2.2MF 20% 50V
C608	1-123-875-11	(West Germany)... ELECT 10MF 20% 50V
C609	1-162-286-31	(West Germany)... CERAMIC 220PF 10% 50V
C610	1-124-499-11	ELECT 1MF 20% 50V
C621	1-124-477-11	(West Germany)... ELECT 47MF 20% 25V
C622	1-124-477-11	(West Germany)... ELECT 47MF 20% 25V
C623	1-124-477-11	ELECT 47MF 20% 25V
C624	1-124-925-11	ELECT 2.2MF 20% 50V
C625	1-124-477-11	ELECT 47MF 20% 25V
C626	1-124-499-11	ELECT 1MF 20% 50V
C627	1-124-902-00	ELECT 0.47MF 20% 50V
C651	1-162-282-31	CERAMIC 100PF 10% 50V
C652	1-162-282-31	CERAMIC 100PF 10% 50V
C653	1-162-288-31	(West Germany)... CERAMIC 330PF 10% 50V
C654	1-123-875-11	(West Germany)... ELECT 10MF 20% 50V
C655	1-130-485-00	(West Germany)... MYLAR 0.015MF 5% 50V
C656	1-130-480-00	(West Germany)... MYLAR 0.0056MF 5% 50V
C657	1-124-925-11	(West Germany)... ELECT 2.2MF 20% 50V
C658	1-123-875-11	(West Germany)... ELECT 10MF 20% 50V
C659	1-162-286-31	(West Germany)... CERAMIC 220PF 10% 50V
C660	1-124-499-11	ELECT 1MF 20% 50V
C671	1-124-499-11	ELECT 1MF 20% 50V
C672	1-123-875-11	ELECT 10MF 20% 50V
C673	1-161-379-00	CERAMIC 0.01MF 30% 16V
C674	1-123-875-11	ELECT 10MF 20% 50V
C675	1-124-477-11	ELECT 47MF 20% 25V
C701	1-162-288-31	CERAMIC 330PF 10% 50V
C702	1-124-443-00	ELECT 100MF 20% 10V
C703	1-162-282-31	CERAMIC 100PF 10% 50V
C704	1-124-910-11	ELECT 47MF 20% 50V
C705	1-136-165-00	FILM 0.1MF 5% 50V
C706	1-136-165-00	FILM 0.1MF 5% 50V
C707	1-124-499-11	ELECT 1MF 20% 50V
C708	1-124-444-00	ELECT 220MF 20% 10V
C721	1-123-875-11	ELECT 10MF 20% 50V
C722	1-124-122-11	ELECT 100MF 20% 50V
C723	1-123-875-11	ELECT 10MF 20% 50V
C724	1-124-908-11	ELECT 22MF 20% 50V
C725	1-124-463-00	ELECT 0.1MF 20% 50V
C751	1-162-288-31	CERAMIC 330PF 10% 50V
C752	1-124-443-00	ELECT 100MF 20% 10V
C753	1-162-282-31	CERAMIC 100PF 10% 50V
C754	1-124-910-11	ELECT 47MF 20% 50V
C755	1-136-165-00	FILM 0.1MF 5% 50V
C756	1-136-165-00	FILM 0.1MF 5% 50V
C757	1-124-499-11	ELECT 1MF 20% 50V
C758	1-124-444-00	ELECT 220MF 20% 10V
C772	1-124-908-11	ELECT 22MF 20% 50V
C773	1-124-444-00	ELECT 220MF 20% 10V
C774	1-124-927-11	ELECT 4.7MF 20% 50V
C901	1-126-224-11	ELECT 4700MF 20% 42V
C902	1-126-224-11	ELECT 4700MF 20% 42V
C903	1-136-171-00	FILM 0.33MF 5% 50V
C904	1-136-171-00	FILM 0.33MF 5% 50V
C906	⚠.1-161-742-00	CERAMIC 0.0022MF 20% 400V
C907	1-124-556-11	ELECT 2200MF 20% 16V
C908	1-136-165-00	FILM 0.1MF 5% 50V
C909	1-136-165-00	FILM 0.1MF 5% 50V
C910	1-124-636-00	ELECT 3300MF 20% 25V
C911	1-124-563-11	ELECT 2200MF 20% 25V
C912	1-126-103-11	ELECT 470MF 20% 16V
C913	1-124-477-11	ELECT 47MF 20% 25V
C914	1-124-477-11	ELECT 47MF 20% 25V
C915	1-136-165-00	FILM 0.1MF 5% 50V
C999	1-136-165-00	FILM 0.1MF 5% 50V
CN101	*1-565-291-11	SOCKET, CONNECTOR 13P
CN102	*1-564-337-00	PIN, CONNECTOR 3P
CN151	*1-566-858-11	SOCKET, CONNECTOR 11P
CN401	*1-564-505-11	PLUG, CONNECTOR 2P
CN404	*1-565-041-11	PIN, CONNECTOR (PC BOARD) 5P
CN551	*1-564-495-11	PIN, CONNECTOR 2P
CN601	*1-564-507-11	PLUG, CONNECTOR 4P
CN602	*1-564-508-11	PLUG, CONNECTOR 5P
CN603	*1-564-513-11	PLUG, CONNECTOR 10P
CN702	*1-564-522-11	PLUG, CONNECTOR 7P
CN703	*1-564-520-11	PLUG, CONNECTOR 5P
CN901	1-506-979-11	CONNECTOR, BOARD TO BOARD 13P
CN902	1-564-610-21	CONNECTOR, BOARD TO BOARD
CN904	*1-564-342-61	PIN, CONNECTOR 8P
CN905	*1-564-501-11	PIN, CONNECTOR 8P
CN906	*1-564-502-11	PIN, CONNECTOR 10P
D301	8-719-310-63	DIODE SEL4725C
D302	8-719-310-63	DIODE SEL4725C
D303	8-719-310-63	DIODE SEL4725C
D304	8-719-310-63	DIODE SEL4725C
D305	8-719-310-63	DIODE SEL4725C
D306	8-719-310-63	DIODE SEL4725C
D307	8-719-310-63	DIODE SEL4725C
D308	8-719-310-63	DIODE SEL4725C
D309	8-719-310-63	DIODE SEL4725C
D310	8-719-310-63	DIODE SEL4725C
D311	8-719-310-63	DIODE SEL4725C
D312	8-719-310-63	DIODE SEL4725C
D313	8-719-310-63	DIODE SEL4725C
D314	8-719-310-63	DIODE SEL4725C
D315	8-719-310-63	DIODE SEL4725C
D316	8-719-310-63	DIODE SEL4725C
D317	8-719-310-63	DIODE SEL4725C
D318	8-719-310-63	DIODE SEL4725C
D319	8-719-310-63	DIODE SEL4725C
D320	8-719-310-63	DIODE SEL4725C
D321	8-719-310-63	DIODE SEL4725C

Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Ref.No.	Part No.	Description
D322	8-719-310-63	DIODE SEL4725C
D323	8-719-310-63	DIODE SEL4725C
D324	8-719-310-63	DIODE SEL4725C
D325	8-719-310-63	DIODE SEL4725C
D326	8-719-301-60	DIODE SEL2910A-C
D327	8-719-310-81	DIODE SEL1722K-C
D328	8-719-310-81	DIODE SEL1722K-C
D329	8-719-310-81	DIODE SEL1722K-C
D330	8-719-310-81	DIODE SEL1722K-C
D331	8-719-301-38	DIODE SEL2210S-C
D332	8-719-000-26	DIODE US1060M
D401	8-719-301-43	DIODE SEL2410E-C
D601	8-719-000-26	DIODE US1060M
D602	8-719-000-26	DIODE US1060M
D603	8-719-000-26	DIODE US1060M
D604	8-719-000-26	DIODE US1060M
D605	8-719-000-26	DIODE US1060M
D606	8-719-000-26	DIODE US1060M
D607	8-719-000-26	DIODE US1060M
D701	8-719-000-26	DIODE US1060M
D702	8-719-000-26	DIODE US1060M
D703	8-719-000-26	DIODE US1060M
D704	8-719-000-26	DIODE US1060M
D705	8-719-000-26	DIODE US1060M
D706	8-719-000-26	DIODE US1060M
D901	8-719-302-38	DIODE RBV-602-01
D902	8-719-200-77	DIODE 10E2N
D903	8-719-200-77	DIODE 10E2N
D904	8-719-200-77	DIODE 10E2N
D905	8-719-200-77	DIODE 10E2N
D906	8-719-000-26	DIODE US1060M
D907	8-719-200-77	DIODE 10E2N
D908	8-719-200-77	DIODE 10E2N
D909	8-719-200-77	DIODE 10E2N
D910	8-719-200-77	DIODE 10E2N
D911	8-719-000-26	DIODE US1060M
D912	8-719-000-26	DIODE US1060M
D913	8-719-000-26	DIODE US1060M
D914	8-719-000-26	DIODE US1060M
F901	1-532-846-21	(West Germany)... LINK, IC
F901	⚠.1-532-783-21	(US)... FUSE, MICRO (SECONDARY) 5A
F902	1-532-846-21	(West Germany)... LINK, IC
F902	⚠.1-532-783-21	(US)... FUSE, MICRO (SECONDARY) 5A
F903	1-532-841-21	(West Germany)... LINK, IC
F903	⚠.1-532-778-21	(US)... FUSE, MICRO (SECONDARY) 1.6A
F904	⚠.1-532-285-00	(West Germany)... FUSE, TIME-LAG 1.25A
F904	⚠.1-532-743-11	(US)... FUSE, GLASS TUBE 2A
IC301	8-759-913-80	IC IR2E31
IC302	8-759-913-80	IC IR2E31
IC303	8-759-913-80	IC IR2E31
IC304	8-759-913-80	IC IR2E31
IC305	8-759-913-80	IC IR2E31
IC306	8-759-600-02	IC M5218L
IC307	8-759-602-04	IC M5226P
IC308	8-759-602-04	IC M5226P
IC309	8-759-600-02	IC M5218L
IC401	8-759-600-02	IC M5218L
IC402	8-759-600-02	IC M5218L
IC403	8-759-820-62	IC LB1639
IC601	8-759-821-00	(US)............ IC LC6528C-3699
IC601	8-759-820-50	(West Germany)... IC LC6528C-3649
IC602	8-759-800-33	IC LC7815H
IC603	8-759-600-02	(West Germany)... IC M5218L
IC701	⚠.8-749-941-52	IC STK4152II
IC901	8-759-604-50	IC M5F7910
IC902	8-759-604-84	IC M5F7806
IC905	8-759-604-32	IC M5F7810
J201	1-564-980-11	PIN, CONNECTOR 4P
J202	1-536-705-00	TERMINAL BOARD (SP)
J501	1-562-837-11	JACK (HEADPHONES)
J551	1-562-981-21	JACK (MIC)
J601	1-507-908-11	JACK, PIN 4P
L601	1-410-564-21	INDUCTOR 100UH
PT901	⚠.1-449-288-11	(US)............ TRANSFORMER, POWER
PT901	⚠.1-449-194-11	(West Germany)... TRANSFORMER, POWER
Q151	8-729-115-15	TRANSISTOR BN1A4M
Q201	8-729-600-94	TRANSISTOR 2SK381-C
Q301	8-729-117-54	TRANSISTOR 2SA1175
Q401	8-729-600-27	TRANSISTOR 2SC634SP
Q402	8-729-600-27	TRANSISTOR 2SC634SP
Q403	8-729-600-27	TRANSISTOR 2SC634SP
Q404	8-729-600-27	TRANSISTOR 2SC634SP
Q405	8-729-115-79	TRANSISTOR BA1A4M
Q601	8-729-600-27	TRANSISTOR 2SC634SP
Q701	8-729-801-83	TRANSISTOR 2SB1013
Q702	8-729-108-05	TRANSISTOR 2SC1841-PA
Q703	8-729-108-05	TRANSISTOR 2SC1841-PA
Q704	8-729-600-27	TRANSISTOR 2SC634SP
Q705	8-729-600-27	TRANSISTOR 2SC634SP
Q901	8-729-801-83	TRANSISTOR 2SB1013
R151	1-249-425-11	CARBON 4.7K 5% 1/4W
R152	1-249-429-11	CARBON 10K 5% 1/4W
R201	1-249-429-11	CARBON 10K 5% 1/4W
R202	1-249-433-11	CARBON 22K 5% 1/4W
R203	1-249-417-11	CARBON 1K 5% 1/4W
R205	⚠.1-247-727-81	(West Germany)... CARBON 10 5% 1/2W F
R206	⚠.1-247-727-81	(West Germany)... CARBON 10 5% 1/2W F
R301	1-249-427-11	CARBON 6.8K 5% 1/4W
R302	1-249-435-11	CARBON 33K 5% 1/4W
R303	1-249-425-11	CARBON 4.7K 5% 1/4W
R304	1-249-426-11	CARBON 5.6K 5% 1/4W
R307	1-249-438-11	CARBON 56K 5% 1/4W
R321	1-249-430-11	CARBON 12K 5% 1/4W
R322	1-249-430-11	CARBON 12K 5% 1/4W
R323	1-249-441-11	CARBON 100K 5% 1/4W
R324	1-249-431-11	CARBON 15K 5% 1/4W
R325	1-247-881-00	CARBON 120K 5% 1/4W
R326	1-249-430-11	CARBON 12K 5% 1/4W
R327	1-249-441-11	CARBON 100K 5% 1/4W
R328	1-249-431-11	CARBON 15K 5% 1/4W
R330	1-247-881-00	CARBON 120K 5% 1/4W
R331	1-249-429-11	CARBON 10K 5% 1/4W
R332	1-249-441-11	CARBON 100K 5% 1/4W
R341	1-249-429-11	CARBON 10K 5% 1/4W
R342	1-249-418-11	CARBON 1.2K 5% 1/4W
R343	1-249-429-11	CARBON 10K 5% 1/4W
R344	1-249-399-11	CARBON 33 5% 1/4W
R345	1-249-423-11	CARBON 3.3K 5% 1/4W
R348	1-249-429-11	CARBON 10K 5% 1/4W
R351	1-249-427-11	CARBON 6.8K 5% 1/4W

Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Ref.No.	Part No.	Description				
R352	1-249-435-11	CARBON	33K	5%	1/4W	
R353	1-249-425-11	CARBON	4.7K	5%	1/4W	
R354	1-249-426-11	CARBON	5.6K	5%	1/4W	
R357	1-249-438-11	CARBON	56K	5%	1/4W	
R372	1-249-428-11	CARBON	8.2K	5%	1/4W	
R373	1-249-426-11	CARBON	5.6K	5%	1/4W	
R379	1-249-413-11	CARBON	470	5%	1/4W	
R380	1-249-414-11	CARBON	560	5%	1/4W	
R381	1-249-413-11	CARBON	470	5%	1/4W	
R383	1-249-425-11	CARBON	4.7K	5%	1/4W	
R384	1-249-425-11	CARBON	4.7K	5%	1/4W	
R390	1-249-429-11	CARBON	10K	5%	1/4W	
R392	1-249-412-11	CARBON	390	5%	1/4W	
R401	1-249-441-11	CARBON	100K	5%	1/4W	
R402	1-249-429-11	CARBON	10K	5%	1/4W	
R403	1-249-431-11	CARBON	15K	5%	1/4W	
R404	1-247-903-00	CARBON	1M	5%	1/4W	
R406	1-247-895-00	CARBON	470K	5%	1/4W	
R407	1-249-421-11	CARBON	2.2K	5%	1/4W	
R409	1-249-429-11	CARBON	10K	5%	1/4W	
R426	1-249-417-11	CARBON	1K	5%	1/4W	
R427	1-249-415-11	CARBON	680	5%	1/4W	
R428	1-249-429-11	CARBON	10K	5%	1/4W	
R431	1-249-405-11	CARBON	100	5%	1/4W	
R432	1-249-405-11	CARBON	100	5%	1/4W	
R451	1-249-441-11	CARBON	100K	5%	1/4W	
R452	1-249-429-11	CARBON	10K	5%	1/4W	
R453	1-249-431-11	CARBON	15K	5%	1/4W	
R454	1-247-903-00	CARBON	1M	5%	1/4W	
R456	1-247-895-00	CARBON	470K	5%	1/4W	
R457	1-249-421-11	CARBON	2.2K	5%	1/4W	
R459	1-249-429-11	CARBON	10K	5%	1/4W	
R501	⚠1-247-750-81	CARBON	680	5%	1/2W	F
R502	⚠1-247-750-81	CARBON	680	5%	1/2W	F
R601	1-249-418-11	CARBON	1.2K	5%	1/4W	
R602	1-247-891-00	CARBON	330K	5%	1/4W	
R603	1-249-432-11	CARBON	18K	5%	1/4W	
R604	1-249-418-11	CARBON	1.2K	5%	1/4W	
R605	1-249-418-11	(West Germany)... CARBON	1.2K	5%	1/4W	
R606	1-249-438-11	(West Germany)... CARBON	56K	5%	1/4W	
R607	1-249-418-11	(West Germany)... CARBON	1.2K	5%	1/4W	
R608	1-249-437-11	(West Germany)... CARBON	47K	5%	1/4W	
R609	1-215-487-00	(West Germany)... CARBON	560K	5%	1/4W	
R610	1-247-891-00	CARBON	330K	5%	1/4W	
R611	1-249-423-11	(West Germany)... CARBON	3.3K	5%	1/4W	
R611	1-249-428-11	(US)............ CARBON	8.2K	5%	1/4W	
R612	1-247-891-00	CARBON	330K	5%	1/4W	
R613	1-249-417-11	CARBON	1K	5%	1/4W	
R614	1-247-891-00	CARBON	330K	5%	1/4W	
R615	1-249-429-11	CARBON	10K	5%	1/4W	
R616	1-249-425-11	CARBON	4.7K	5%	1/4W	
R621	1-249-421-11	CARBON	2.2K	5%	1/4W	
R622	1-247-887-00	CARBON	220K	5%	1/4W	
R623	1-249-429-11	CARBON	10K	5%	1/4W	
R624	1-249-429-11	CARBON	10K	5%	1/4W	

Ref.No.	Part No.	Description				
R625	1-249-429-11	CARBON	10K	5%	1/4W	
R626	1-249-429-11	CARBON	10K	5%	1/4W	
R627	1-249-433-11	CARBON	22K	5%	1/4W	
R628	1-249-433-11	CARBON	22K	5%	1/4W	
R629	1-249-433-11	CARBON	22K	5%	1/4W	
R630	1-249-433-11	CARBON	22K	5%	1/4W	
R651	1-249-418-11	CARBON	1.2K	5%	1/4W	
R652	1-247-891-00	CARBON	330K	5%	1/4W	
R653	1-249-432-11	CARBON	18K	5%	1/4W	
R654	1-249-418-11	CARBON	1.2K	5%	1/4W	
R655	1-249-418-11	(West Germany)... CARBON	1.2K	5%	1/4W	
R656	1-249-438-11	(West Germany)... CARBON	56K	5%	1/4W	
R657	1-249-418-11	(West Germany)... CARBON	1.2K	5%	1/4W	
R658	1-249-437-11	(West Germany)... CARBON	47K	5%	1/4W	
R659	1-215-487-00	(West Germany)... CARBON	560K	5%	1/4W	
R660	1-247-891-00	CARBON	330K	5%	1/4W	
R661	1-249-423-11	(West Germany)... CARBON	3.3K	5%	1/4W	
R661	1-249-428-11	(US)............ CARBON	8.2K	5%	1/4W	
R662	1-247-891-00	CARBON	330K	5%	1/4W	
R663	1-249-417-11	CARBON	1K	5%	1/4W	
R664	1-247-891-00	CARBON	330K	5%	1/4W	
R665	1-249-429-11	CARBON	10K	5%	1/4W	
R666	1-249-425-11	CARBON	4.7K	5%	1/4W	
R670	1-249-428-11	CARBON	8.2K	5%	1/4W	
R671	1-249-426-11	CARBON	5.6K	5%	1/4W	
R672	1-249-419-11	CARBON	1.5K	5%	1/4W	
R673	1-249-429-11	CARBON	10K	5%	1/4W	
R674	1-249-417-11	CARBON	1K	5%	1/4W	
R675	1-249-441-11	CARBON	100K	5%	1/4W	
R676	1-249-417-11	CARBON	1K	5%	1/4W	
R677	1-249-417-11	CARBON	1K	5%	1/4W	
R678	1-249-418-11	CARBON	1.2K	5%	1/4W	
R679	1-249-417-11	CARBON	1K	5%	1/4W	
R680	1-249-417-11	CARBON	1K	5%	1/4W	
R681	1-249-425-11	CARBON	4.7K	5%	1/4W	
R682	1-249-425-11	CARBON	4.7K	5%	1/4W	
R683	1-249-406-11	CARBON	120	5%	1/4W	
R684	1-249-406-11	CARBON	120	5%	1/4W	
R685	1-249-423-11	CARBON	3.3K	5%	1/4W	
R686	1-249-423-11	CARBON	3.3K	5%	1/4W	
R687	1-249-423-11	CARBON	3.3K	5%	1/4W	
R688	1-249-423-11	CARBON	3.3K	5%	1/4W	
R701	1-249-425-11	CARBON	4.7K	5%	1/4W	
R702	1-249-429-11	(West Germany)... CARBON	10K	5%	1/4W	
R702	1-249-428-11	(US)............ CARBON	8.2K	5%	1/4W	
R703	1-249-438-11	CARBON	56K	5%	1/4W	
R704	1-249-414-11	CARBON	560	5%	1/4W	
R705	1-249-438-11	CARBON	56K	5%	1/4W	
R706	⚠1-247-756-11	CARBON	2.2K	5%	1/2W	F
R707	⚠1-247-756-11	CARBON	2.2K	5%	1/2W	F
R708	⚠1-247-727-81	CARBON	10	5%	1/2W	F
R709	1-249-429-11	CARBON	10K	5%	1/4W	
R710	1-247-881-00	CARBON	120K	5%	1/4W	
R711	⚠1-217-151-00	RES, METAL PLATE 0.22				F
R712	1-249-414-11	CARBON	560	5%	1/4W	
R713	1-249-414-11	CARBON	560	5%	1/4W	

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Ref.No.	Part No.	Description				
R721	⚠1-212-881-11	FUSIBLE	100	5%	1/4W	F
R722	⚠1-247-752-11	CARBON	1K	5%	1/2W	F
R723	⚠1-247-752-11	CARBON	1K	5%	1/2W	F
R724	⚠1-212-881-11	FUSIBLE	100	5%	1/4W	F
R725	1-249-414-11	CARBON	560	5%	1/4W	
R726	1-249-441-11	CARBON	100K	5%	1/4W	
R727	1-247-903-00	CARBON	1M	5%	1/4W	
R751	1-249-425-11	CARBON	4.7K	5%	1/4W	
R752	1-249-429-11	(West Germany)... CARBON	10K	5%	1/4W	
R752	1-249-428-11	(US)............CARBON	8.2K	5%	1/4W	
R753	1-249-438-11	CARBON	56K	5%	1/4W	
R754	1-249-414-11	CARBON	560	5%	1/4W	
R755	1-249-438-11	CARBON	56K	5%	1/4W	
R756	⚠1-247-756-11	CARBON	2.2K	5%	1/2W	F
R757	⚠1-247-756-11	CARBON	2.2K	5%	1/2W	F
R758	⚠1-247-727-81	CARBON	10	5%	1/2W	F
R759	1-249-429-11	CARBON	10K	5%	1/4W	
R760	1-247-881-00	CARBON	120K	5%	1/4W	
R761	⚠1-217-151-00	RES, METAL PLATE 0.22				F
R762	1-249-414-11	CARBON	560	5%	1/4W	
R763	1-249-414-11	CARBON	560	5%	1/4W	
R771	1-249-425-11	CARBON	4.7K	5%	1/4W	
R772	1-249-425-11	CARBON	4.7K	5%	1/4W	
R773	1-249-441-11	CARBON	100K	5%	1/4W	
R774	1-249-430-11	CARBON	12K	5%	1/4W	
R775	1-249-429-11	CARBON	10K	5%	1/4W	
R776	1-249-430-11	CARBON	12K	5%	1/4W	
R777	1-249-429-11	CARBON	10K	5%	1/4W	
R778	1-249-425-11	CARBON	4.7K	5%	1/4W	
R901	1-249-425-11	CARBON	4.7K	5%	1/4W	
R902	1-249-425-11	CARBON	4.7K	5%	1/4W	
R903	1-202-725-00	(US)... RES, SOLID 3.3M 10% 1/2W				
RV301	1-238-069-11	RES, VAR, CARBON 50K (MIC LEVEL)				
RV302	1-238-064-11	RES, VAR, SLIDE 100K (BALANCE)				
RV303	1-238-065-11	RES, VAR, SLIDE 250K/250K (100Hz)				
RV304	1-238-065-11	RES, VAR, SLIDE 250K/250K (400Hz)				
RV305	1-238-065-11	RES, VAR, SLIDE 250K/250K (1kHz)				
RV306	1-238-065-11	RES, VAR, SLIDE 250K/250K (4kHz)				
RV307	1-238-065-11	RES, VAR, SLIDE 250K/250K (12kHz)				
RV401	1-238-061-11	RES, VAR CARBON 50K/50K (VOLUME)				
RY701	1-515-616-11	RELAY				
RY901	1-515-516-00	(West Germany)... RELAY				
RY901	1-515-601-11	(US)............RELAY				

Ref.No.	Part No.	Description
S301	1-554-303-21	SWITCH, KEY BOARD (POWER)
S302	1-554-419-00	SWITCH, PUSH (1 KEY)(DBFB)
S303	1-571-436-11	SWITCH, KEYBOARD (TAPE)
S304	1-571-436-11	SWITCH, KEYBOARD (CD)
S305	1-571-436-11	SWITCH, KEYBOARD (TUNER)
S306	1-571-436-11	SWITCH, KEYBOARD (PHONO) (AUX)
T902	⚠1-449-193-11	(West Germany)... TRANSFORMER, POWER
T902	⚠1-449-289-11	(US)............TRANSFORMER, POWER
VZ901	⚠1-807-180-31	VARISTOR SNR-14A471U
X601	1-567-819-11	VIBRATOR, CERAMIC

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